

LIBRARY OF THE
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

016.7114
C73e
no. 361-375



REFERENCE
016-7114

C73e

#361-375

UNIVERSITY OF ILLINOIS LIBRARY

Name

Identification
Number

Address

~~Ray Ontiveros~~

~~605 S. Fourth #210~~

~~355-44-3241~~

~~1116 9 1974~~

Digitized by the Internet Archive
in 2010 with funding from
University of Illinois Urbana-Champaign

<http://www.archive.org/details/annotatedbibliog374375davy>

74-5

Council of Planning Librarians EXCHANGE BIBLIOGRAPHY

March 1973

**374-
375**

ANNOTATED BIBLIOGRAPHY ON GROWTH CENTRES

Barry W. Davy
Department of Geography
McMaster University

THE LIBRARY OF THE

MAR 6 1973

Mrs. Mary Vance, Editor
Post Office Box 229
Monticello, Illinois 61856

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

ANNOTATED BIBLIOGRAPHY ON GROWTH CENTRES

by

Barry W. Davy
Department of Geography
McMaster University

PREFACE

This bibliography was prepared by the author in his role as a research assistant on a project, headed by Drs. L. King and G. Papageorgiou, entitled "Models of Spatial Growth Poles and the Forecasting of Regional Economic Growth". The project is supported by a research grant from the Canadian Council on Urban and Regional Research.

As with any bibliography, this one is dated as soon as it is assembled. Its usefulness hopefully lies not as much in its comprehensiveness, as in its stimulus for further research based on a better awareness of the existing literature.

The annotated comments are, in all cases, those of the author, and, while hopefully of use to all in their abbreviated form, are not to be construed as a general summary of each article.

Many individuals or agencies have contributed either knowingly or unknowingly to such a compilation: Dr. W. B. Stohr (McMaster University), Dr. J. B. Parr (University of Pennsylvania), N. D. Milne (University of Texas - Austin), R. W. Kelly (Atlantic Provinces Economic Council), S. Rosenblatt (U. S. Department of Commerce, Economic Development Administration), A. R. Kuklinski (UNRISD), and countless others who have provided freely of their time and references.

The arduous task of assembling this work was undertaken by my wife, Mary, while most of the secretaries in the Geography Department participated in the typing of the final draft at different intervals. Their assistance is greatly appreciated though, of course, any errors outstanding remain the sole responsibility of the author.

A list of abbreviations used in this bibliography include:

JOURNALS

AAAG	Annals of the Association of American Geographers
JAIP	Journal of the American Institute of Planners
CPL	Council of Planning Librarians Exchange Bibliography Series
CRES	Centre for Regional Economic Studies (Pittsburgh)
Cahiers de l'I.S.E.A.	Papers of the Institute of Applied Economic Science
JRS	Journal of Regional Science
PRSA	Papers of Regional Science Association

AGENCIES & LEGISLATION

(i) International

UNRISD	United Nations Research Institute for Social Development
UNIDO	United Nations Industrial Development Organization
EFTA	European Free Trade Association
OECD	Organization for European Co-operation & Development
IGU	International Geographical Union

(ii) United States

EDA	Economic Development Association
ARC	Appalachian Regional Commission
ARA	Area Redevelopment Act (1961)
RFF	Resources for the Future
CPRC	Coastal Plains Regional Commission
UGLRC	Upper Great Lakes Regional Commission
OEDP	Overall Economic Development Plan
RSRI	Regional Science Research Institute
HUD	Department of Housing and Urban Development
SMSA	Standard Metropolitan Statistical Area
FEA	Functional Economic Area
EDD	Economic Development District
PW & ED Act	Public Works and Economic Development Act (1965)

(iii) Canada

APEC	Atlantic Provinces Economic Council
ADB	Atlantic Development Board
ARDA	Agricultural Rehabilitation and Development Act
ADA	Area Development Agency
CCURR	Canadian Council on Urban and Regional Research
DREE	Department of Regional Economic Expansion

Allen, K. & T. Hermansen. "Economic Growth - Regional Problems & Growth Centres," Chapter 2, in Regional Policy in EFTA: An Examination of the Growth Centre Idea. Edinburgh: University of Glasgow Social and Economic Studies, Occasional Paper No. 10, 1968, 29-70.

Importance of the statement that regional problems when left alone will not resolve themselves; in fact they accentuate themselves. Regional decline becomes self-perpetuating with the role of the negative multiplier effect important. Paper aims to set growth pole discussion in light of work in regional economies. Terms and concepts - notion of a region, regional policy, regional analysis and regional economics, regional economic planning, regional physical and location policy.

Alonso, W. "The Form of Cities in Developing Countries," PRSA, 13, 1964, 165-173.

Distinction made between morphological and explanatory observations and extended to the case of urban form in developing countries. Variation in explanatory variables between developed and developing countries elaborated. Implicit reference to growth poles with reference to overcoming competition between industrial and squatter location on the urban periphery.

Alonso, W. Location, Primacy and Economic Development. Berkeley, California: Centre for Planning & Development Research, Discussion Paper, August 1966.

Alonso, W. Industrial Location and Regional Policy in Economic Development. Berkeley, California: Centre for Planning & Development Research, Working Paper 74, February 1968.

Discussion of abstract theory of industrial location and factors that are more significant than transportation costs in economic development. First taken from the point of view of the firm or project and then in light of national spatial development. While not discussing growth poles directly, discussion is very related to much of the growth pole literature because alternatives have been between principal city and hinterland locations.

Alonso, W. Aspects of Regional Planning and Theory in the United States. Berkeley, California: Centre for Planning and Development Research, Working Paper No. 87, October 1968.

General synopsis of regional planning in the U.S. again with emphasis on efficiency and equity. Some comments on scale and 'geographic fallacy.' Mention of commitment to growth centres (p. 14) especially in Appalachia. Some speculative comments on nature of theoretical development.

Alonso, W. "Urban & Regional Imbalances in Economic Development," Economic Development and Cultural Change, 17, 1969, 1-14.

Concepts of urbanization and regional policy, while complementary, tend to be detrimental to economic growth. Example of growth poles cited where inequality is transferred from the national to the regional level. Questioning of notion of diseconomies of overurbanization, and of existence of optimum urban size.

Alonso, W. & E. Medrich. "Spontaneous Growth Centres in Twentieth Century American Urbanization," in N. M. Hansen (ed.), Growth Centres in Regional Economic Development. New York: Free Press, 1972, 229-265.

Limited goal of growth centres in a national urbanization policy if they are simply viewed as distributing mechanisms for decentralizing and equilibrating growth. Authors differentiate then between these policy instruments - induced growth centres, and spontaneous growth centres. Paper attempts to isolate the importance of the latter since the turn of the century for decennial cross-sections and for varying SMSA size classes. This importance is interpreted in terms of population growth, migration and spatial incidence of such growth.

Andrews, R. B. State Economic Development: Wisconsin's Planning Methods. Madison, Wisconsin: The University of Wisconsin Press, Land Economics Monograph No. 2, 1968.

Explicit documentation of the philosophies, assumptions and techniques of state economic planning. Delineation of state planning areas and documentation of maximum planning strategies. Growth centre notions (and growth corridors) made explicit in the urban centre and corridor system (e.g. pp. 34-43 for the northern part) as growth points for industrial development.

Angus, J. "Urban Regional Settlement Systems and Growth Centre Strategy," Bloomington, Indiana: Paper presented at Mid-Continent Regional Science Association, 1972.

Atlantic Provinces Economic Council. "The Norwegian Approach to Regional Economic Development," Pamphlet No. 3, 1962.

No explicit mention made of growth centres, but experience in Norway has shown that establishment of cornerstone plants in northern Norway is basic to raising labour mobility and employment. Special incentives stressed from central government.

Atlantic Provinces Economic Council. "Industrial Estates & Economic Development," Pamphlet No. 4, 1963.

Review of the origin of industrial estates in U.K., U.S. and Italy, originally via private funds and subsequently as a public venture. Usually used as an instrument for encouraging location and development of industry at local level and also to encourage decentralization from large areas. Variety of types of industrial estates based on degree of facility development. Not specifically related to growth centre concept.

Atlantic Provinces Economic Council. "Community & Municipal Development," Pamphlet No. 7, March 1964.

Importance of good community environment stressed in industrial location. Importance of several facts -- limited number of plants locating, every community not a potential industrial centre, region also important for community development (role of "growth points"). Review of economic base study as a means of strengthening the local area economies.

Atlantic Provinces Economic Council. "A Development Program for the Atlantic Provinces," Pamphlet No. 8, May 1965.

Outline of objectives of regional development and concentration of industrial activity recognized as one in particular. General review of external economies afforded by concentration as well as some of the logic behind growth centres. Eight specific communities recommended as growth centres based on past population increase, economic base and location. Assessment of industrial incentives necessary, based on past experience in Britain. (for example, industrial sites and factories, capital grants). Also social readjustment via migration, additional housing and servicing. Centres include: St. John's, Halifax-Truro, Saint John, Moncton, Sydney-Glace Bay, Cornerbrook, Charlottetown and Bathurst-Belldune.

Atlantic Provinces Economic Council. Fifth Annual Review, The Atlantic Economy, October 1971.

In-depth examination of Department of Regional Economic Expansion with respect to development in Atlantic region based on policies and programs instituted to-date. Review of federal regional development efforts prior to DREE--e.g. ARDA (established in 1961 revised in 1965) and its Fund for Rural Economic Development (FRED); Atlantic Development Board (ADB 1962); Area Development Agency (ADA 1963); Cape Breton Development Corporation (DEVCO 1967). DREE set up under Jean Marchand in 1968. Regional Development Incentives Act (1969) became the arm for inducing growth, replacing the Area Development Incentives Act (1963). Summary of the policies of DREE and the change in legislation since then. Criticism hinges on initial formation, loose legislation, passive instruments, and over-concentration of decision-making in Ottawa.

- Aujac, H. "La hiérarchie des industries dans un tableau des échanges interindustriels, et ses conséquences dans la mise en oeuvre d'un plan national décentralisé," Revue économique, 11, 1960, 169-238.
- Aydalot, P. "Note sur les économies externes et quelques notions connexes," Revue économique, 16, 1965, 962.
- Aydalot, P. "Etude sur le processus de polarisation et sur les réactions des industries anciennes à la lumière de l'expérience de Lacq," Cahiers de l'I.S.E.A., 15L, 1965, 111.
- Baillargeon, J. P. "Le Rôle de pôles dans le développement: expose introductif," Développement et Civilisations, 5, 1961, 31-37.
- Bauchet, P. "La Comptabilité économique régionale et son usage," Economie appliquée, 14, 1961, 51-83.
- Baumol, W. J. "Urban Services: Interactions of Public and Private Decisions," in H. G. Schaller (ed.), Public Expenditure Decisions in the Urban Community. Washington, D.C.: Resources for the Future, 1963, 1-18.

Review of past need for government activity in the provision of services to overcome ignorance or incompetence on the part of the public, to prevent or ameliorate unfair arrangements and to effect the interdependence of members of the public. Growth in demand for public services as a result of: growing productivity and wealth, rising urban population, technological change, the movement to the suburbs and urban blight. Formal analysis of the process of cumulative deterioration using the example of blight per capita income. Question of implementation of public service policy--who should be responsible and how should benefits or equity be measured?

- Bender, L. D., et al. "Trickle-down and Leakage in the War on Poverty," Growth and Change, 2:4, 1971, 34-41.

Article attempts to measure the degree to which the rural poor in the Ozarks are by-passed as the region industrializes. Leakage in this case refers to the extent to which in-migration precludes participation of local rural poor. Such in-migration can in fact worsen the relative position of local immobile poor. Importance of Reder's model for trickle-down of employment demand into skilled, semi-skilled and unskilled brackets. Role of migration is disrupted in this early theory. Results show that in-migrants do form a more favourable labour force (education and training). Use of discriminant analysis to calculate those non-migrant native characteristics associated with in-migration rate.

Bernard, P. "Growth Poles and Growth Centres as Instruments of Regional Development and Modernization with Special reference to Bulgaria and France," Geneva: UNRISD, 1970.

Some general comments on concepts of growth points and use in various countries with emphasis on particular policies and results in Bulgaria and France.

Berry, B.J.L. "The Impact of Expanding Metropolitan Communities on the Central Place Hierarchy," AAAG, 50, 1960, 112-116.

An attempt to fuse central place notions with those of metropolitan dominance through an examination of the differentiation of urban centres around Seattle, Washington. Examination of individual deviant centres in light of access, situation, location of higher order centres. Impact of an expanding metropolitan community seen as twofold: population-function imbalance and internal specialization in the metropolis. Note relevance to growth pole notions from the point of view of changes in the tertiary sector of a growth pole and of its surrounding tributary centres.

Berry, B.J.L. "Identification of Declining Regions: An Empirical Study of the Dimensions of Rural Poverty," pp. 22-70 (plus comments) in R. D. Wood and R. S. Thoman (ed.), Areas of Economic Stress in Canada. Kingston: Industrial Relations Centre, Queen's University, 1965.

It is shown that rural poverty in Ontario is distributed in certain rhythms and patterns. Economic disadvantage found to be of two forms--rural farm poverty and rural non-farm poverty; along with social disadvantage. Strategic location of new industries at important growth poles aimed at second economic disadvantage directly and at social disadvantage indirectly. Measurement and identification problem compounded with numerous imprecise indices--both single and multiple. Use of factor analysis to determine types of social and economic disadvantage and regional pattern evidenced by each type. Supplemented with dimensional analysis--enables precise measurements of the location of all observations on principal factor scales and then allows for discriminatory analysis. Analytic procedure carried out for 120 census counties of Ontario and Quebec in earlier study and entire procedure carried out for 555 municipalities in Ontario.

Berry, B.J.L. "Theories and Techniques for Studying Urban and Regional Growth," chapter 4 in B.J.L. Berry and F. E. Horton, Geographic Perspectives on Urban Systems. Englewood Cliffs, New Jersey: Prentice-Hall, 1970, 94-105, and also as "Strategies, Models and Economic Theories of Development in Rural Regions," Agricultural Economic Report No. 127, U. S. Department of Agriculture, 1967.

Consistent explanations of patterns of urban and regional growth lie within economic theory. Trade theory and location theory as suggestive, but not helpful because of the assumptions of immobility of factors of production. Yet location theory has considerable insight for strengths and weaknesses of particular cities or regions. (1) Trade theory in Ricardian form focusses on notion of comparative advantage via specialization. Ohlin stressed that differences in regions were based on differences in factor endowments. (2) Location theory based on three levels of observation -- the firm, groups of firms in stable competition and sets of activities (e.g. agricultural). (3) Export or staple theory emphasizes migration of factors of production in response to high returns offered for staple export. Note the important notion of "take-off" into self-sustained growth when the secondary or residentiary activities become export staples. Regional development of staple industries as a function of national economic growth. Thompson's urban size ratchet important where smaller centres have more variable growth rates and there is the introduction of a more varied industrial mix which leads to continued growth. Growth forecasting in general assumes that regions are predefined, good historical data exist and past trends will hold in the future; link of regional fortunes to national trend. (1) Shift analysis (spatial allocation or components-of-growth approach) based on three main components of growth. (2) Economic base analysis based on short-run importance of export activity and forecasts of growth based on the multiplier. (3) Intersectoral input-output analysis (area accounts and multipliers) provides a complete description of transactions within and between regions for some period based on notion that the amount of goods and services delivered by any sector to the other sectors is a linear and homogeneous function of the output levels of the purchasing sectors. (4) Interregional intersectoral input-output rarely operational because of data problems. (5) Econometric models use social accounting tables of input-output into a series of equations. (6) Simulation models most often time-dependent probability processes. Developmental programming -- spatial programming in agriculture in U.S. and activity analysis for 5 county area. See Speigelman, Baum and Talbot. 1965.

Berry, B.J.L. & P. J. Schwind. "The National Space-Economy & Urban Fields in Iowa's Urban Future," Proceedings of the 1967 Urban Policy Conference. Iowa City: University of Iowa, Institute of Public Affairs, 1967, 25-29.

Iowa's urban future seen as a function of the state's position in national economy and internal organization of the state in a series of major urban markets. National growth element seen as set of innovations and diffusion processes. Participation in local urban employment opportunities instrumental in determining regional income levels and local unemployment rates. Migration as main equilibrating mechanism (4 main types found). With reference to "new towns," it is noted that only labour markets with population greater than 250,000 are capable of self-sustained growth, while in centres of less than 25,000 there is no impact on the welfare gradients.

Berry, B.J.L. & V.L.S. Prahasa Rao. Urban Duality in the Regional Structure of Andhra Pradesh. Wiesbaden: Franz Steiner Verlag, 1968.

Discussion of rural/urban dichotomy and need for more explicit and integrated urban hierarchy with trickling down of growth to hinterlands. Application of notions of Friedmann to Indian experience (particularly with references to some policy implications).

Berry, B.J.L. "A Summary -- Spatial Organization & Levels of Welfare: Degree of Metropolitan Labour Market Participation as a Variable in Economic Development," Research Review, (EDA), July 1968, 1-6.

Test of hypothesis that degree of labour market participation is the key variable determining the 'regional welfare syndrome.' Regional welfare syndrome notes that labour market participation declines with increasing distance from the city, as do average value of farm land and buildings, median family income, median school years completed, rate of population increase and percent gain in population through migration. Percent of families with income less than \$3000 and unemployment rate both increase with distance. Where employment centres closely spaced, welfare gradients reduced or eliminated. Reversal of pattern in large NE cities. Suggests growth centre investment most profitable around 250,000 threshold.

Berry, B.J.L. Growth Centres and Their Potentials in the Upper Great Lakes Region. Upper Great Lakes Regional Commission, May 1969.

Introduction includes a review of stages of growth in U.S. economic regions as it has changed over time (heartland/hinterland dichotomy), and position of the Upper Great Lakes region vis-a-vis these national changes. Then summary of bases of regional growth theory and their implications for growth centre theory in general (especially pp. 23-25), followed by specific consideration of the presently-defined growth areas and development districts. Identification of a hierarchy of growth areas and hinterlands based on a modified Borchert and Adams classification. Factor scores of "economic power" calculated for largest centres and the hierarchy compared with Rand-McNally's Marketing and Commercial Atlas which defined its hierarchy in a non-systematic manner. Study of labour markets, spread effects and gradients of urban influence. Example of diffusion of TV and of gradients between Detroit and Alpena, Sault Ste. Marie, Travers City; Chicago and Marquette, Ironwood, Eau Claire; Minneapolis to Duluth; Fargo to Duluth; Duluth to Sault Ste. Marie. Shows regular change in indicators of economic welfare and performance. Examination of migration change and changes in manufacturing and agricultural employment.

Berry, B.J.L. "Labour Market Participation & Regional Potential," Growth & Change, 1:4, 1970, 3-10.

Degree of labour market participation is key variable in the regional welfare syndrome. Use of journey-to-work records for 1960 Census and aggregated from census tract level. Density gradients view of commuting, population per square mile, population percent urban, median family income, and average value of farm lands for transects between urban centres. The amplitude of these gradients appear related to the rank of centres in the urban hierarchy. A threshold limitation appears to operate in 40-50,000 range where population apparently fails to exert any spread effect except in the most distant peripheries. Reversal of the pattern within cities. Three components established from national scale--heartland/hinterland; urban hierarchy; urban/rural gradient. Distance and isolation therefore are the main constraints on labour market participation. Advocacy by Berry of investment in centres closer to the 250,000 EDA maximum to elevate them to self-sufficiency.

Berry, B.J.L. "Social Change as a Spatial Process," International Social Development Review, forthcoming.

Assimilation of social change with spatial process of innovation diffusion. Can overcome socially backward regions through creation of new growth poles and channels and by changing the pace and sequence of spread. Diffusion of cultures attributed largely to anthropology. First formal locational model attributed to Hagerstrand-growth curve. Spatial expression of growth (three stages) as macro-components. Reference to work of Perloff et. al. about national diffusion, heartland/hinterland, hinterland comparative advantage based on narrow and intensive specialization in resource subsectors. Ties together work of Thompson, Friedmann and Miller, Myrdal. Operation of urban labour markets interesting --shift in industry to low income region because of pricing out of existence in heartland metropolis. Multiplier effects are larger in the initiating region although relative rise in income is greater in the underdeveloped region. Failure of this mechanism in the 'Third World' attributed to institutional and functional causes thereby supporting primacy and polarization.

Berry, B.J.L. "Hierarchical Diffusion: The Basis of Developmental Filtering and Spread in a System of Growth Centres," in N. M. Hansen (ed.), Growth Centres in Regional Economic Development. New York: Free Press, 1972, 108-138.

The role played by growth centres in regional development is a particular case of the general process of innovation diffusion including the simultaneous filtering of innovations that bring growth down the urban hierarchy and spreading both nationally from the core to the periphery, and locally to the intermetropolitan periphery.

Bharadwaj, K. R. "A Note on Structural Interdependence and the Concept of a Key Sector," Kyklos, 19, 1966, 315-319.

Backward and forward linkage effects isolated as two structures in a sequence for accelerating the growth process. Problems of quantifying such linkages (possibly via input-output matrices). Concern only for sectoral or economic growth, to the neglect of the spatial. Backward linkage criterion (the more important of the two) shown to be of limited use in evaluating investment criteria.

Bird, A. R. "Growth Areas & Development Districts of the Upper Great Lakes Economic Development Region," February 13, 1968.

Blaug, M. "A Case of Emperor's Clothes: Perroux's Theories of Economic Domination," Kyklos, 17, 1964, 551-564.

Perroux's theory of 'dominant economic units' criticized and traced in its development. Last of three stages in development notion seen as synonymous with 'points of growth', leading firms, or leading sectors.

Bloch-Laine, F. & F. Perroux. L'entreprise et l'économie du XX^e siècle. Paris: Presses Universitaires de France, 3 Volumes, 1967.

In French only. Lombardian propulsive enterprises and the spatial distribution of economic activities (pp. 233-240) discussed in detail.

Blumenfeld, H. "The Trend to the Metropolis: Bibliography," CPL Exchange Bibliography #144, August 1970.

Loose bibliography of work subdivided into Canadian and non-Canadian works.

Borts, G. H. "Criteria for the Evaluation of Regional Development Programs," pp. 183-218 in Werner Hirsch (ed.), Regional Accounts in Policy Decisions. Baltimore: Johns Hopkins Press for Resources for the Future, 1966.

Formulation of the regional development problem in terms of the social rate of return on investment (national level) in depressed areas. Two part paper concerned first with possible role of externalities in influencing policy toward growing and declining regions and second with the problem of economic disequilibrium in depressed areas.

Borts, G. H. Patterns of Regional Economic Development in the U.S. & Their Relation to Rural Poverty. Washington, D.C.: National Advisory Committee on Rural Poverty, 1967.

Boudeville, J. R. "L'économie régionale - espace opérationnel," Cahiers de l'I.S.E.A., 3L, 1958.

Boudeville, J. R. "La région plan," Cahiers de l'I.S.E.A., 6L, 1960, 21-43.

Boudeville, J. R. "A Survey of Recent Techniques for Regional Economic Analysis," in W. Isard & John H. Cumberland (eds.), Regional Economic Planning. Paris: OECD, 1961, 377-397.

Review of some of the economic techniques relevant to this "new" area of regional economic analysis. Models of homogeneous and nodal regions and the development of spatial programs. Concept of development related to central place notions of hierarchy under models of nodal regions. Propulsive and dominant industries viewed under development programming.

Boudeville, J. R. "Note sur la notion d'intégration," Cahiers de l'I.S.E.A., 14L, 1964.

Boudeville, J. R. Problems of Regional Economic Planning.
Edinburgh: University Press, 1966.

Much of the early chapters as basic to any understanding of locational analysis, in general, and the analysis of growth poles in particular. Particular attention should be paid to his concepts and definitions of space; to its transformation into homogeneity, polarization and finality; to the notion of growth pole as related to propulsive industry, and to its effect as a polarizing force.

Boudeville, J. R. "Frontiers and Interrelations of Regional Planning," Chapter 27 in E.A.G. Robinson (ed.), Problems in Economic Development. London: MacMillan, 1966, 456-466.

Concerned with the examination of the region from the standpoint of the aim pursued (programmed or planned region). Importance of frontiers of a programmed region to designate interregional or intraregional trade. Homogeneous and polarized region as alternatives to planned region in the view of the economists. Necessity of considering the region in light of national programmes and based on urban hierarchy, substantiated.

Boudeville, J. R. et. al. L'espace et les pôles de croissance - recherches et Textes Fondamentaux. Paris: Presses Universitaires de France, Bibliothèque d'Economie Contemporaine, études I.S.E.A., 1968.

Boventer, E. von. "Towards a United Theory of Spatial Economic Structure," PRSA, 10, 1963, 163-187.

Aim to construct a more general theory of spatial distribution of producers and consumers in towns of various sizes while reviewing past theories (agriculture and urban location of Von Thunen and Alonso), partial regional structures of cities (Christaller and Losch), and competitive equilibrium (Hotelling). General theory recognizes a type of ring formation with systematic variation in input coefficients within a type of Christaller hierarchy. Implicit to spatial structure of growth centre system.

Boventer, E. von. "Spatial Organization Theory as a Basis for Regional Planning," JAIP, 30, 1964, 90-100.

Generalizations about spatial structure leading to role of agglomeration economies (both localization and urbanization), innovation and growth poles. Role of public policy and planning (subsidies, transfer payments) in attaining desired optimum or equilibrium. Recognition of the importance of historical structures.

Boventer, E. von. "Regional Economic Problems in West Germany," Chapter 9, in E.A.G. Robinson (ed.), Backward Areas in Advanced Countries. London: MacMillan, 1969, 171-195.

Breese, G. et. al. The Impact of Large Installations on Nearby Areas - Accelerated Urban Growth. Beverly Hills: Sage Pub., 1965.

Brewis, T. N. Regional Economic Policies in Canada. Toronto: Macmillan Co. Ltd., 1969.

Examination of area development policies as they affect the Canadian scene. General introduction to the spatial characteristics of the Canadian economy (industrial location, regional delineation) and the bases for regional disparity (income, unemployment). Policies include: rural poverty and ARDA; designated areas and the Area Development Agency (ADA); Atlantic Provinces and the Atlantic Development Board. The national and provincial roles outlined separately.

Burdine, F. B. "Victoria, Texas: Evaluation of a Growth Centre," Discussion Paper No. 12, Centre for Economic Development, The University of Texas at Austin, October 1970.

Examination of the designation of Victoria (population 40,000) as a growth centre in the Coastal Bend District. Begins with a discussion of the historical growth of Victoria county. It was not the largest in its district in all past periods, although it is now. Population change attributed to shifting economic base, factor efficiency (from labour to capital intensive), mobility of population, cultural interchange (military base) and new industrial developments. Examination of Friedmann's core/periphery concept with respect to tertiary services (complete breakdown), manufacturing and population characteristics. Qualitative description of the relevance of Victoria as a growth centre. Questioning of Berry's 50,000 minimum and both Berry's and Thompson's take-off point of 250,000.

Bylund, E. "Industrial Location Policy and the Problems of Sparsely Populated Areas in Sweden," Chapter 10 in E.A.G. Robinson (ed.), Backward Areas in Advanced Countries. London: MacMillan, 1969, 196-209.

Bylund, E. "Growth Centre and Administrative Area Problems Within the Framework of the Swedish Location Policy," in A. R. Kuklinski (ed.), "...Seven Case Studies," February 1971, 117-130.

Attractiveness of large growth centres in the south of Sweden varies with the economic activity of the country as a whole. This is reflected in the migration data from the north. A new location policy is aimed at checking out migration and depopulation. Assessment of individual centres reveals that few are fit for even the lowest service centre status.

Cameron, G. C. & B. D. Clark. Industrial Movement and the Regional Problem. Edinburgh: Occasional Paper No. 5, University of Glasgow Social and Economic Studies, 1966.

Introduction to policy programs for inducing location of manufacturing in Britain. Aim to investigate reasons for industries locating in government sponsored areas. Both negative controls (licenses) and positive inducements (loans, tax reprieves) cited. Done for the period of 1958-1963. Examination of the impact of industrial mobility in assisted areas, particularly with response to creation of new poles. Further investigation into the causes of movement; more akin to industrial site selection. The study is only implicitly relevant to the notion of growth poles from the point of industrial location.

Cameron, G. C. "The Regional Problem in the U.S.--Some Reflections on a Viable Federal Strategy." Regional Studies, 2, 1968.

Cameron, G. C. "Growth Areas, Growth Centres and Regional Conversion," Scottish Journal of Political Economy, 17, 1970, 19-38.

Four arguments for the notion of unbalanced or decentralized growth examined. A review of conflicting and unstandardized marginal cost curve for social and economic overhead capital as towns increase in size. Find in general that the unit costs of infrastructure do fall as town size increases and that a very small unit is serviced at a higher cost than towns in excess of 30-40,000. Thorough discussion of regional economic growth according the hinterland in the form of: initial multiplier benefits, attraction of exogeneous capital, and long-term economic growth. Lack of empirical verification for many of the 'a priori' postulates necessary.

Cameron, G. C. Regional Economic Development: The Federal Role. Baltimore: Johns Hopkins Press for RFF, 1970.

Study is an attempt at re-evaluation of the policy choices made by U. S. Department of Commerce EDA from August 1965-November 1968. Concentration on rural distressed areas based on justification for Federal involvement. Specific discussion in chapter 3 on the role of the growth centre policy as such an instrument. Speculation of probable future depressed areas ventured. Comments on regional commissions as basis for Federal, state and local planning. Includes Public Works & Economic Development Act (1965) in appendix.

Canada, Department of Industry, Area Development Agency. Tax Incentives for Designated Areas - Explanatory Notes. Ottawa: 1963.

Canada, Department of Industry, Area Development Agency. Area Development Incentives Regulations, "P.C. 1965-1395." Ottawa: 1965.

Canada, Department of Regional Economic Expansion. (DREE) Ottawa: Information Canada, 1971.

Objectives and organization of DREE vaguely outlined. Termination of several existing agencies and programs through its inception. Four main work areas: planning and programming, industrial incentives, infrastructures assistance and social adjustment/rural development. Further elaboration of programs such as incentives to industry.

Canada, Privy Council, Special Planning Secretariat (now defunct).

"The Problem of Declining Communities," Ottawa: paper prepared by the Atlantic Development Board for the Conference on Poverty, 1965, mimeo.

Carol, H. "Geographic Identification of Regional Growth Centres and Development Regions in S. Ontario," Toronto: Regional Development Branch, Department of Economics & Development, November 1966.

Aim to identify regional growth centres of middle order and to identify higher metropolitan centres with their service areas, with ultimate aim of making some comments on those ten development regions designated by the province. Three concepts of spatial development: extreme decentralization, concentrated decentralization and extreme concentration. Functional unit of city and its hinterland seen as basis for development regions. Use of case study in Oshawa region using personal interviews to obtain trade areas and hierarchy of centres. Use of mailed questionnaire for province as a whole, to obtain 2 level hierarchy with 4 development regions of high order and 19 development regions of middle order. Note that the study is a basic empirical central place work, designating 19 growth centres on 2 tiers simply on the basis of present functional makeup (\$ sales in retail activities).

Casetti, E. & R. K. Semple. "A Method for the Stepwise Separation of Spatial Trends," Michigan Inter-University Community of Mathematical Geographers, 1965.

A method is proposed to identify the smooth changes functionally related to distance from optimal points or lines of reference. Empirical application to separate spatial trends from data on population growth in small urban centres in S. Ontario. Use of stepwise multiple regression to predict this spatial trend.

Casetti, E. "Optimal Interregional Investment Transfers," JRS, 8, 1968, 101-107.

Use of macroeconomic investment models to maximise the aggregate income utility. Interplay of comparative marginal productivity of investments in different regions and decreasing marginal utility of consumption expressed as a time sequence using difference equations. For the two region case, investment will flow into the region with higher investment productivity until an appropriate income gradient is established. Size of the gradient is controlled by differences in regional investment productivities.

Casetti, E.; L. J. King & J. Odland. "On the Formal Identification of Growth Poles in a Spatial Temporal Context," Proceedings of the Canadian Association of Geographers. Winnipeg: June 1970, 39-43.

Formal identification of the existence of a growth pole in a spatial context by differentiation of some surface of urban importance over time.

Casetti, E.; L. J. King & J. Odland. "The Formalization and Testing of Concepts of Growth Poles in a Spatial Context," Environment and Planning, 3, 1971, 377-382.

Examination of "legitimate" characteristics essential to polarized growth and then establishment of a means of formally identifying growth in a spatial-temporal context based on first and second derivatives. An empirical example of relative polarization of Los Angeles vis-a-vis 13 other western U.S. cities.

Chapin, F. S., Jr. & S. F. Weiss. Urban Growth Dynamics in a Regional Cluster of Cities. New York: Wiley, 1962.

Implicitly relevant to the notion of growth and growth poles with particular reference to the Piedmont Crescent area. Book concerned with: (1) urban growth dynamics - how much growth, how distributed and what kinds of economic factors tend to regulate growth; (2) factors of socio-economic character that are expected to influence growth; (3) expected implications this growth would have for living patterns and (4) implications of forecast urban growth for physical urban expansion. Especially chapter 14 "Policy Implications of Research Findings," 459-475.

Chinitz, B. "The Regional Problem in the U.S.A.," Chapter 4 in E.A.G. Robinson (ed.), Backward Areas in Advanced Countries. London: MacMillan, 1969, 52-61.

Discussion of assistance available under the Area Redevelopment Act (ARA 1961) and the 7 independent criteria for eligibility in the present Public Works and Economic Development Act (1965). Examples of areas coming under each of the 7 "models" given, although no mention of appropriate response.

Coastal Plains Regional Commission. Economic Development Plan. August 1971.

Coastal Plains Regional Commission made up of 159 contiguous counties in North Carolina, South Carolina and Georgia with similar problems of industrial mix, prevailing wage rates and civilian labour force participation rate. This report is a revision of the Regional Development Plan (1968) which has been modified by State Development Plans and consultant reports. Summary of natural resources, the people and the economy. Inclusion of growth centres as assigned by member states based on commission's enabling Act. Appendix D includes bibliography of all research produced for the CPRC. Program goals set out by Commission along with economic development strategy. Plan furthered with Commission's policies and programs.

Condos, A. "Regional Development and the Theory of Economic Policy," Supplement B in The Role of Growth Centres in Regional Economic Development. Ames, Iowa: Department of Economics, Iowa State University, 1966.

Paper seeks to outline the theory of economic policy as one in which all policies can be linked together mathematically and aim is to predict future economic phenomena or explain past ones. Basic outline of regional economic policy based on Tinbergen and later work by Theil and others. Such policy statements include: objectives or aims, and instruments. Note that development of growth centres is cited as an instrument of regional development policy. Three simple economic models set out to illustrate earlier points:

(1) first is a two region model based on income analysis, where the policy problem consists of determining the levels of government expenditures in two regions based on their economic structures, in order to achieve specified target levels of income.

(2) second is activity analysis model concerned with development and utilization of resources in small rural areas via disaggregated linear programming method.

(3) third has been used in Italy to determine way in which national income is translated into production increases in each region. Model geared to 20 sectors and three regions of Italy.

Coutsoumaris, G. "Regional Activity Relocation Problems in a Developing Economy," PRSA, 12, 1964, 79-86.

Relocation of existing activities in Greece either to deal with structural imbalances of growth or to handle changes in normal economic growth patterns. Industry shifts as part of decentralization policy. Primarily a discussion of Greek problems as they are related to policy action. Growth centre policy as implicit in such a policy solution.

Cumberland, J. H. & F. Van Beek. "Regional Economic Development Objectives and Subsidization of Local Industry," Land Economics, 43, 1967, 253-264.

Use of local funds (both private and public) to induce industries to locate in their own areas. Arguments for and against posed; note short-run action in light of long-run goals. Inexplicit goals or objectives set out by local agency (e.g., to reduce unemployment). Implicit in growth pole notions in light of its counter-effect on governmental policies of designating growth centres.

Cutler, A. T. & J. E. Hansz. "Sensitivity of Cities to Economic Fluctuations," Growth and Change, 2, 1971, 23-28.

Impact of fluctuations in economic activity 1961-68 on 35 SMSA's. Will an emphasis upon durable good manufacturing entail greater vulnerability to economic fluctuations? On national scale it has been shown that industries engaged in durable goods manufacturing are especially sensitive to cyclical fluctuations--issue considerably more clouded at local scale (Isard, Thompson). Nonagricultural employment and bank debits used as surrogates for index of industrial production and measure of consumer and business spending, respectively. Quarterly data for a period of minor fluctuations. Indices of sensitivity relate total change in nonagricultural employment and bank debits to 35 SMSA average. Small differences shown. Regional averages, however, indicated no more significant relationship (ANOVA test). Use of correlation to compute relationship between sensitivity and industrial composition (durable goods)--for all 35 SMSA's and for those in NE-North Central area. Use of t-test to compare correlation coefficients. Support for intuitive notion that there is a connection between industrial composition and sensitivity to fluctuations. Implicit in notion of growth centres and emphasis on durable goods manufacturing.

Darwent, D. F. "Growth Pole and Growth Centre Concepts: A Review Evaluation and Bibliography," Berkeley: Centre for Planning & Development Research, Working Paper No. 89, October 1968.

Same paper as published later in Environment and Planning, 1, 1969, 5-31.

Darwent, D. F. "Growth Poles and Growth Centres in Regional Planning - A Review," Environment and Planning, I, 1969, 5-32.

Intensive review of the literature in order to sort out some of the confusion in terminology. Conceived in both economic (polarization, linkages) and geographic (polarization, centre/periphery) space. Question of theory of growth poles raised as well as positive contributions and deficiencies in the work to date.

Datta Chauduri, M. & L. Leber. Regional Development in South-east Asia - Experiences and Prospects. Geneva: UNRISD, 1970.

Davin, L. Economie Régionale et croissance. Paris: Editions Génin, 1964, 54-72.

Davin, L. E. "The Structural Crisis of a Regional Economy. A Case Study: The Walloon Area," Chapter 6 in E.A.G. Robinson (ed.), Backward Areas in Advanced Countries. London: MacMillan, 1969, 113-143.

Department of Agricultural Economics, Phase 2: Analysis of Agribusiness and Agricultural Potentials. Cornell: Stage College of Agriculture.

Agribusiness as distinct from farming--tends to locate in urban growth centres for same reasons as other economic enterprises. Summary of input and output for farm business expenditures for Appalachian counties in New York State. Compilation of employment and capital investments. Assessment of alternative resource uses--e.g. accelerated development on dairy farms, dairy beef herds, and vegetable industry. Examination of economic contributions of agribusiness to growth centres--urban competition for viable agricultural land.

Di Tella, T. S. "The Concept of Polarized Development in Regional Planning - A Sociological Interpretation," Geneva: UNRISD, May 1969.

Review of relevant sociological theories on social stratification and migration, formation and roles of associationist leaders and this related to a general theory of social, economic and geographical development.

Di Tella, T. S. "The Concept of Polarized Development in Regional Planning - A Sociological Interpretation," in A. R. Kuklinski (ed.), "A Review of the Concepts and Theories of Growth Poles and Growth Centres," Geneva: UNRISD, November 1970, 145-189.

Same paper as that submitted to UNRISD Geneva, May 1969.

Dulmage, H. B. "Industrial Growth Patterns and Strategy in Small Ontario Municipalities," Belleville: 1970.

An attempt to discover why some small municipalities have not had population and industrial growth in post WW II period. Major focus of study on 1963-68 period, but additional historical data back to mid-19th century. Interest in communities up to 80,000 for comparative purposes, but mainly up to 40,000. Exclusion of Toronto area. 60 municipalities and 328 new industrial plants. No assessment of closing or expansions. Results show greatest number of employees per firm up to 40,000 population with slight average decline in 40-60,000 range. Location of existing industries not considered a factor in industrial location. However, considerable evidence supports location of industries as spin-off of existing industries (use of existing key personnel). Existing population size has a positive relationship with average number of firms and total number of employees. Success of Federal Government Area Development programs marked, along with Ontario provincial government incentives under Ontario Development Corporation. Equalization of Industrial Opportunity (EIO) whereby municipalities grouped via number of new industries and subjective characteristics laid out for each. Summary of traits sought by new industries based on ordinal ranking questionnaire. Appendix of summarized data included.

Dumont, B. "Les industries de la croissance," Economie appliquée, 21, 1968, 79-91.

Duskin, G. L. & R. L. Moomaw. "Economic Development Centres: A Review," Staff paper, Office of Economic Research, Economic Development Administration, July 1967.

Summary of economic development district program, and their designation (district growth centre). Possible conflict of redevelopment area and development centre programs. Selection of development centre based on unweighted index of seven attributes: proximity to redevelopment areas, rate of population growth, labour force participation rate, median family income, service and wholesale activity, per capita retail sales and transportation facilities. Questions use of service and wholesale activity. Rather, should be concerned with national market activities. Criticism of low budgetary allowance under EDA legislation. Calls for considerably more theoretical research, and cites the grant to the University of California at Berkeley.

Dyckman, J. W. "The Public and Private Rationale for a National Urban Policy," chapter 2 in S. B. Warner, Jr. (ed.), Planning for a Nation of Cities. Cambridge, Massachusetts: MIT Press, 1966, 23-42.

Resolution of conflict between centralized national economy and decentralized urban economy necessary via national urban policy. Inequalities within and between cities are being reinforced. Question of level of organization that decides urban policy development -- both in public and private sector. Necessity of co-ordination in both short and long-run goals. Implicit to growth centre concepts with references to co-ordinating a public and private impetus to encourage decentralization.

EEC & Italconsult. Study on the Promotion of an Industrial Development Pole in Southern Italy. Brussels: 1966.

European Free Trade Association (EFTA). Regional Policy in EFTA: An Examination of the Growth Centre Idea. Edinburgh: University of Glasgow Social and Economic Studies, Occasional Paper No. 10, 1968. (introduction and Chapter 1 - for other chapters see Allen & Hermansen and each separately.)

Working paper established to which papers by Allen, Hermansen, and then, Allen & Hermansen submitted working papers. Practical definition accepted as: "an urban core (however small) and its surrounding area defined by an acceptable journey to work; and capable of either spontaneous growth, or of potential growth (which could if required by stimulated government intervention). Benefits are also likely to be felt in surrounding centres" (p. 21). Problem areas, where felt to be of relevance, include: sparsely populated regions, underdeveloped regions, depressed industrial regions and pressured regions. Virtually impossible to arrive at any ideal size of a growth centre. Note that in selection of a growth centre (pp. 25-27), the nature of the effects are long term, inferences might be drawn that other areas not designated as growth poles will stagnate (not necessarily even growth with no growth poles), and benefits of growth pole designation are widespread.

Enke, S. Economics for Development. Englewood Cliffs, New Jersey: Prentice-Hall, 1963.

Chapters 9 and 10, "Some Growth and Development Models" and "Historical Stages of Economic Growth," respectively. Chapters 16 and 17, "A Big Push Under Government Direction" and "Unbalanced Industrial Growth," respectively.

Fisher, I. "The Implications of Rural-urban Migration for Regional Development and Growth Centre Policies," The Research Review (EDA), June 1971, 8-15.

Summary of 4 central issues in rural-urban migration process: (1) regional and interregional patterns of migration, (2) causes of urban-rural migration, (3) characteristics of migrants, and (4) economic benefits. Examination of some of the implications for growth centre policy--e.g. industrialization of rural areas and alternative forms of rural aid.

Four Corners Regional Commission

Second Annual Report Fiscal Year 1969

Four Corners Regional Commission as a 92 county area with by far the largest land area of the six regional commissions. Problem of 70% government ownership of land. Very low population density and income; presence of ethnic minority groups. Summary of years work.

Third Annual Report Fiscal Year 1970

Summary of years policies with respect to human resources, transportation, industrial development and natural resources.

Working Sheet for Fiscal Year 1971

Documentation of projects, their costs and expected date of completion.

Fox, K. A. "Regional Development in a National Setting," Supplement A to The Role of Growth Centres in Regional Economic Development. Department of Economics, Iowa State University, 1966.

History of 'new' concepts and developments on national economies from Schumpeter, to Hirschman, to Leontief (with considerable attention to U.S. work on input/output), and to Keynes (short-run behavioural implications via econometric models). Review of empirical work on local economies by rural sociologists (Galpin)--shape of trade areas, notion of hierarchy. Discussion of the development of such economies based on density of farm population. Dependence on Berry's national system of cities where central city is focus of national economy. Can view these regional growth centres on the basis of econometric models outlined earlier.

Friedmann, J. "Regional Planning: A Problem in Spatial Integration," PPRSA, 5, 1959, 167-179.

Importance of transportation costs in structuring economic landscape. Dual economy that emerges in economic history dichotomized as one of exchange and one of subsistence. Solution seen as aiming towards balanced regional growth via: creation of closer transportation and communications network; assessment of potential of subsistence region and immediate heavy investment in overhead capital in the subsistence region; and decentralization of industrial investments. No explicit mention of growth centres per se, rather emphasis on regional dichotomy.

Friedmann, J. "Integration of the Social System: An Approach to the Study of Economic Growth," Diogenes, 33, 1961, 75-97.

Discussion of social and political integration as a prerequisite to economic growth. Economic integration also critical as broken down into: a common and stable medium of exchange, a common commodity market, economies of scale and the subordination of private to public ends in economic action. Implicit to notion of growth poles because it is the function of the city to effectively integrate these elements.

Friedmann, J. "Regional Economic Policy for Developing Areas," PRSA, 11, 1963, 41-61.

Formulation of necessary conditions for nonhomogeneous spatial equilibrium, but evidence presented that supports disequilibrium based on constant technological change, rapid changes in supply and demand, and failure to achieve regional convergence. Presented in framework of the centre-periphery concept. Ordering of areas for their development potential - metropolitan development areas, transitional upward areas, frontier regions and transitional downward areas.

Friedmann, J. & J. Miller. "The Urban Field," JAIP, 31, 1965, 312-320.

Breakdown of U.S. into metropolitan areas and intermetropolitan periphery leading to new concept of spatial order - the urban field. Rapid incorporation of the periphery into the urban realm seen as a result of increasing productivity, mobility and income. Explicit role of government policy in reinforcing the trends of the growth of urban fields (government investment, and increased information).

Friedmann, J. Regional Development Theory: A Case Study of Venezuela. Cambridge, Massachusetts: 1966.

Friedmann, J. & W. B. Stohr. "The Uses of Regional Science: Policy Planning in Chile," PRSA, 18, 1967, 207-222.

The role of theory and explanation in regional science related in contrast to the practical necessities of the regional planner with specific reference to Chile. Only implicit to the question of growth centres, evidencing the gap that occurs in reality.

Friedmann, J. & T. Lackington. "Hyperurbanization and National Development in Chile: Some Hypotheses," Urban Affairs Quarterly, 2:4, 1967, 3-29.

Friedmann, J. "The Strategy of Deliberate Urbanization," JAIP, 34, 1968, 364-373.

Rapid urbanization seen as positive development policy. Discussion of key role of communications and accelerated urbanization, concentrated urbanization, concentrated decentralization and political strategies capable of overcoming 'crisis of inclusion'. Note discussion of core regions and identification of social development poles.

Friedmann, J. "The Future of Urbanization in Latin America: Some Observations on the Role of the Periphery," Studies in Comparative International Development, 1969.

Friedmann, J. "A General Theory of Polarized Development," in N. M. Hansen (ed.), Growth Centres in Regional Economic Development, New York: Free Press, 1972, 82-107.

Review of the theory (Classical location, spatial organization, regional growth) with aim to formulating more appropriate theory of development process in its spatial dimension. Development distinguished from growth - former as an innovative process leading to structural transformation of social systems. Further discussion of innovation process and related to core/periphery concept - further structured into nested hierarchies.

Friedmann, J. "The Feasibility of a National Settlement Policy," Growth and Change, 2, 1971, 18-21.

Criticism of National Goals Research Staff (NGRS) Report for lack of original thought, for failure to isolate choices and constraints of future goals and of necessary instruments to achieve such a policy. Specific criticism of value propositions implicit in population distribution statements-- rural/urban, heartland/periphery, and small/large city. Rural strategy rejected as infeasible; while heartland strategy is subsumed under growth centre concept. Growth centre defined in report as "a place whose purpose is to provide new jobs and to have strong ties with the surrounding rural areas." Realistic questioning of whether government subsidy and intervention can significantly alter growth rate of small centres and whether this will make significant inroads in total growth in large centres. Examples of second Los Angeles airport at Palmdale cited as "natural" growth centre without any governmental intervention

Fuller, S. S. "Help for the Hubs: Assessment of Public Facility Investment in Several Growth Areas," Appalachia, 4:9, 1971, 1-14.

Evaluation of impact of ARC investments on basis of sample of 7 growth areas via interviews with local officials and businessmen. Assumption that the provision of quality public facilities and services will stimulate private investment which will encourage new economic activities. This will broaden the tax base and local government will be able to improve more local services. Examples include: Altoona, Pennsylvania where public investment included an access road, a mental health clinic, an outfall sewer line, a vocational technical school, a library and 157 units of low and moderate income housing; Cookeville, Tennessee where improvements include Tennessee Technical University, hospital expansion, construction of a new water facility and better road access via Appalachian corridor J; Crossville, Tennessee -- addition to the airport, technical school and sewage treatment plant; Gaffney, South Carolina; Hornell, New York; Florence, Alabama; Carrolton, Georgia.

Gabler, L. R. "Population Size as a Determinant of City Expenditures and Employment -- Some Further Evidence," Land Economics, 47, 1971, 130-138.

Use of 1967 census data to expand earlier article to eight states. Earlier article had evidenced diseconomies of scale in Ohio, New Jersey and Texas. Dependent variables are city expenditures and employment per capita; use of multiple regression. Assumption of constant level of service quality of urban public sectors. Results show that cities up through the population size 250,000 tend to experience economies of scale in operation of at least some employment categories, though the association is not sufficiently strong to rule out the chance element. Large cities tend to employ and spend more per capita; diseconomies of scale with increasing size only evidenced when those greater than 250,000 included in the analysis. Not universal amongst states nor amongst various public sectors.

Garn, H. A. "New Cities, New Communities and Growth Centres,"
Washington, D.C.: The Urban Institute, March 1970.

Sketch of some of the major issues which should be considered in developing a national policy for new cities, new communities or growth centres (considered as one) - purpose, place selection and most promising kinds of investment. Semantic differences in terminology of three terms. Purpose seen as enhancing growth in existing medium-sized cities and satellite centres. Because most important growth industries in the U.S. are consumer-oriented and service industries, such growth should occur near existing centres (therefore balanced labour force and able to absorb migrants). EDA and Model Cities programs as cases of spreading investments too thinly. Six types of public investment cited -- purchase and assembly of land, provision of infrastructure, location of government facilities, channeling of government contracts, subsidies to private firms and subsidies to relocate and train population. None successful alone.

Garrison, C. B. "Economic Impact of New Industry on Small Towns," unpublished Ph.D., University of Kentucky, 1967.

Gauthier, H. L. "Geography, Transportation and Regional Development," Economic Geography, 46, 1970, 612-619.

Paper seeks to review traditional role of transportation in economic development, its importance as a spatial system and problems arising from relation of spatial impact of transportation to specified goals of regional integration. Work of Hirschman on unbalanced economic development related to effect of transportation. Recognition of sectoral growth pole theory (Perroux) as deficient in spatial attributes. Important point made regarding the spatial incidence between development and transportation system (both positive and negative consequences). Examples in Brazil where increasing accessibility between projected regional growth centres and major metropolises may not carry out anticipated goal. Author adds that the inadequate treatment of transportation in development policy is an additional weakness in the growth centre concept.

Georgia's State Investment Plan 1971-1972. Bureau of State Planning and Community Affairs, 1971.

Investment Plan applicable to both 35 Appalachian counties and Coastal Plains region. Plan aimed at providing a framework for action based on goals, background data and analysis, program limitations and strategy. The growth centre concept (p. 23) outlined as ARC and CPRC--sanctioned strategy--expressed in this case by Biennial Development Program (BDP). Need identified to refine the growth centre concept in future BDP, to further three previously defined criteria--development corridors within the region, stage of development of particular communities and past population growth or community size. Intensive data on projects, and existing economy.

Gertler, L. O. "Development Policies at the Provincial Level," with comments in W. D. Wood and R. S. Thomas (ed.), Areas of Economic Stress in Canada. Kingston: Industrial Relations Centre, Queen's University, 1965, 176-203.

Author attempts to isolate "forces" shaping provincial role in economic development and some of the approaches carried out. ARDA projects analyzed for Ontario and Quebec. Also discusses the example of Newfoundland.

Gish, O. "A Survey of Regional Planning Research Activities in Western Europe and Yugoslavia," London: Centre for Environmental Studies, Information Paper No. 24, 1971.

An examination of the research centres and their main interests as obtained in a seven-month survey of European countries. Some examination of national development policies as they relate to these themes. Considerable work evidenced as explicitly related to growth centres (both theory and policy) amongst the numerous agencies or university departments in each country.

Gokhman, V. M. & L. N. Karpov. "Growth Poles and Growth Centres," in A. R. Kuklinski (ed.), "A Review of the Concepts and Theories of Growth Poles and Growth Centres," Geneva: UNRISD, November 1970, 191-203.

Discussion of some semantics: e.g. the inappropriateness of the term 'pole' in contrast to 'growth area' or 'node'. Also distinction drawn between growth poles and growth centres. Criticism and assessment of papers of Hermansen, Klaassen and Di Tella, and of the limitations of some of the research to date.

Graham, J. F. "Areas of Economic Stress in the Canadian Federal Context," plus comments in R. D. Wood and R. S. Thoman (ed.), Areas of Economic Stress in Canada. Kingston: Industrial Relations Centre, Queen's University, 1965, 7-21.

"Area" and "economic stress" defined more clearly at outset. Summary of some of policies carried out in Canada--areas of economic stress therefore applied to sectors of economy and not merely geographical areas. Case of surplus of labour and importance of surplus of labour and importance of intraregional migration to viable growth centres. Necessity of concerted effort by unified program of three levels of government. See also comments on paper by Chernick ("distress" rather than "stress" and unoperational definition) and Raynauld.

Greenwood, M. J. "Urban Growth and Migration: A Simultaneous Equation Model," Paper presented at the Second Northeast Conference of the Mid-Atlantic Section of the Regional Science Association, Pennsylvania State University, April 1972.

- Gruchman, B. "Growth Poles in the Spatial Structure of the Libyan Economy," in A. R. Kuklinski (ed.), ".... Seven Case Studies," February 1971, 23-37.

Role of growth poles in structurally rearranging spatial system in light of rapid development. Case of Libya cited with its extreme concentration, newly-found independence and increased wealth. Both question of controlling growth of Tripoli and location of new growth centres. Usually rely on some urban place in existing settlement fabric e.g. Benghazi with new-found oil but still narrow economic base and need to strengthen ties with hinterland and modernize agriculture. Also Selenia in agricultural sector. Two pronged approach--growth poles (concentration of major growth) and growth centres (nodal points in central place framework).

- Hale, C. W. "Factors Inhibiting Appalachian Regional Development," American Journal of Economics & Sociology, 30, 1971, 133-158.

- Hale, C. W. "Employment Spread Effects in Appalachia and the South," Growth & Change, 3, 1972, 10-14.

Question arises as to whether lagging regions receive sufficient impetus from national economic cycles. Use of factor analysis of monthly non-agricultural employment in 70 SMSA's for four cycle period 1954-1968. After factor analysis, the resulting partial correlation coefficients were weighted and used to represent employment linkages between each SMSA. INDEX OF ASSOCIATION based on partial correlation coefficient as a measure of regional employment spread. Analysis of results on the basis of regional clusterings. Appalachia, for example, showed equally strong spread effects as other U.S. SMSA's. Yet, Appalachia suffers from an existing tertiary sector--largely contingent upon transportation and communication underdevelopment. Also for Southern SMSA's the employment spread effects are not significantly different from the national average--yet weakness in local multiplier and hinterland linkages. Importance in the South of institutional structure and industrial mix.

- Hansen, N. M. "Regional Planning in a Mixed Economy," Southern Economic Journal, 32, 1965, 176-190.

Public policy seen as means of overcoming inadequacy of market mechanism for equilibrating interregional differences in income and economic opportunity. Example of Paris cited, with view to decentralizing. Classical location theory and economic growth theory inappropriate to be implemented in planning studies.

Hansen, N. M. "Unbalanced Growth & Regional Development," Western Economic Journal, 4, 1965, 3-14.

Application of unbalanced theory of economic growth to intra and inter-regional development problems. Note distinction made between directly productive activities (DPA), and public overhead capital (both social and economic - SOC and EOC respectively). Effect of investment illustrated for congested, intermediate and lagging regions and in three phases based on public policy.

Hansen, N. M. "The Structure and Determinants of Local Public Investment Expenditures," Review of Economics & Statistics, 47, 1965, 150-162.

Development of a number of hypotheses covering four principal groups of causal factors effecting community investment. These centre on demographic housing, commercial and industrial characteristics, the influences of which are examined in light of empirical evidence in East Flanders in Belgium. Suggestion of possible determinants of variation in OC, EOC, and SOC. SOC usually influenced by static factors while EOC is influenced by growth factors.

Hansen, N. M. "Some Neglected Factors in American Regional Development Policy: The Case of Appalachia," Land Economics, 62, 1966, 1-9.

Hansen, N. M. "Human Resources & Regional Development: Some Lessons from French Experience," Southern Economic Journal, 34, 1967, 123-132.

An examination of the extent to which France's lagging regions are in fact related to insufficient investment in human resources. Factors such as governmental policy (e.g. on small farm holdings), rural immobility, education and technological development are important considerations. Findings considered applicable to Appalachian region.

Hansen, N. M. "Development Pole Theory in a Regional Context," Kyklos, 20, 1967, 709-726.

Substantive review of the ambiguity surrounding the concept of development poles and an evaluation of its strengths and weaknesses as a tool for economic analysis via explanation of the concept of economic dominance and economic space.

Hansen, N. M. French Regional Planning. Bloomington: Indiana University Press, 1968.

Unlike balanced or steady growth of total production, theory of development poles emphasizes variable sectoral growth. Variation has economic expansion following a linear spatial path because of role of transportation (i.e. development axes). Review of some of the tenets raised by Perroux and his followers, though no definite theory exists: geographic versus economic space; economic dominance and the process of polarization; criticism of some of the development pole notions. Role of development poles in Fourth Plan assessed.

Hansen, N. M. "Growth Centres and Regional Development: Some Preliminary Considerations," Lexington, Kentucky: Discussion Paper No. 5, University of Kentucky, n.d.

Consideration of role of growth centres in dealing with problem of lagging regional growth. Public investment priorities dealt with as a problem of optimal investment allocation EOC, such as bridges, roads and harbours aimed at supporting DPA. Breakdown of regions into: congested, intermediate and lagging. Reassessment of Hirschman's contention for up-grading lagging regions via public investment, in light of breakdown (SOC/EOC) and empirical results. Recommends far greater SOC investment in human resources. Necessity of outmigration stressed where employment potential never evidenced. Importance of intermediate-sized centres to relieve major out-migration from depressed areas and congested areas of large cities. Constraint of EDA's "worst-first" policy. Brief analysis of the growth process--balanced versus unbalanced growth. Emphasis of EDA policy on attracting industry, and yet it is the tertiary sector that bands together for the increasing number of external economies. Appendices include a summary of French regional policy or urban hierarchy and metropoles d'equilibre.

Hansen, N. M. "French Regional Planning Experience," JATP, 35, 1969, 362-368.

Hansen, N. M. "A Growth Centre Strategy for the United States," Lexington, Kentucky: University of Kentucky, Discussion Paper No. 8, April 1969.

Advocation of a national regional policy based on employment opportunities in intermediate-sized cities, with the condition that a significant number of these opportunities be made available to residents of economically lagging areas. Three propositions examined: feasibility of basing a national regional strategy on the industrialization of rural areas, economic and social economies now outweigh encouraging growth of largest centres, and through use of manpower retraining and relocation plans, it is possible to provide more appealing urban alternatives than the ghetto. Illustration with reference to Piedmont Crescent.

Hansen, N. M. "Regional Development and the Rural Poor," Journal of Human Resources, 4, 1969, 205-214.

Hansen, N. M. "A Note on Urban Hierarchy Stability and Spatial Polarization," Discussion Paper No. 2, Centre for Economic Development, The University of Texas at Austin, December 1969.

Discussion of Lasuen article "On Growth Poles" on several unsubstantiated points. Questions rapid creation of stronger sectoral and geographical interrelations via plant consolidation. Effects cited on competitive situation resulting in the market. Lasuen raises issue of decreasing spatial polarization in more advanced Western countries, but neglects role played by increasing external economies of urbanization associated most often with more rapidly growing sectors which have located largely in fast-growth centres. Failure of export base theory, classical location theory and even central place theory to come to grips with this problem. Greater emphasis now being received under the dynamics of urban-industrial growth. Industry no longer resource-oriented and transportation costs are non-linear.

Hansen, N. M. "Growth Center Policy in the United States," University of Texas Centre for Economic Development, Discussion Paper No. 4, February 1970.

Regional policy in the U.S. in hands of Appalachian Regional Commission (ARC) on basis of Appalachian Regional Development Act (1965) and Public Works and Economic Development Act (1965). Paper serves as an examination of these two pieces of legislation and their areas of implementation. In case of Appalachia, it is significant that for 60 (now increased) development districts potential growth centres were designated by each state. Note distinction between growth centre and growth area. Further breakdown into regional, primary and secondary centre. Documentation of allocation of funds relative to size of centre, location and its function. In case of EDA, 5 regional commissions were established in 1966 - New England, Four Corners, Coastal Plains and Upper Great Lakes. Also assistance to other redevelopment areas as stipulated by unemployment, income and out-migration levels.

Hansen, N. M. "How Regional Policy can Benefit from Economic Theory," Growth and Change, 1:1, 1970, 20-27.

Regional economics conceived as analysis of resource allocation in its spatial dimensions. Discussion of how economic theory applicable to regional policies. Regional economics views homogeneous region or polarized region. Polarized region associated with (1) notion of hierarchy and functions they perform, (2) expansion in industrial base, (3) labour commuting and migration patterns. But actually policy-making in U.S. based on homogeneous regions. (French school's approach to polarized development). Lasuen and Hirschman see the study of industrial organization as critical to developing new nations compared to investment in public overhead capital.

Hansen, N. M. "On Urban Hierarchy Stability and Spatial Polarization: A Note," Urban Studies, 7, 1970, 82-84.

Comment on Lasuen's recent (1969) article in the same journal that pointed growth pole study in the direction of industrial organization. Specific questioning of Lasuen's recommendation of multi-plant, multi-product, multi-city in light of competitive pricing to obtain efficient resource allocation. Also contests the point made by Lasuen that spatial polarization is not still important. Hansen shows that location of economic activity is more free with reference to major regions, but less free with respect to size of community.

Hansen, N. M. "Criteria for a Growth Centre Policy," Discussion Paper No. 9, Centre for Economic Development, University of Texas at Austin, September 1970.

General outline of the growth centre policy for the U.S. Aim to promote development of lagging regions to reap agglomeration and scale economies and also to act as points of attraction for migrants flowing to congested urban areas. Largely unsuccessful because too many centres and inadequate funding. Overemphasis on public works to detriment of health, education and social problems and on spread effects. What is not at issue?--balanced versus unbalanced growth; spread aspects, central place theory and urban hierarchies; and new towns. Necessary investment in human resources (EOC versus SOC). More EOC in lagging areas but less SOC compared to national average. Note two examples of Kaiser (1956) and American Standard both in Central Appalachia. Role of big cities? No answer as to optimum size of cities. Necessary to pump in vast sums of money--is this the best alternative? Intermediate-sized cities as growth centres? Importance of 250,000 size ratchet according to Berry, Thompson. Growth spurt shortly before this self-sustaining size; such that small towns rarely make viable growth centres. Implementing growth centre strategy where "worse-first" policy for development agencies questioned.

Hansen, N. M. Rural Poverty and the Urban Crisis. Bloomington: Indiana University Press, 1970.

Up-to-date summary of the U.S. experience in "rural development" with emphasis on human resources. Preliminary overview of author's work on French regional planning as an introduction to more dispersed U.S. efforts. Regional breakdown of areas with relatively lagging economic conditions--South, Appalachia and regional commissions. Chapter 10 deals exclusively with rationale for a growth centre policy based on intermediate-sized centres as related to notions of optimum city size.

Hansen, N. M. "The Problem of Spatial Resource Allocation," Growth and Change, 2, 1971, 22-24.

Criticism of National Goals Research Staff (NGRS) Report for its simplistic view of development process. Three alternatives forwarded--development of sparsely populated rural areas, promotion of existing small cities and towns, and creation of new towns outside existing metropolitan centres. Report favours growth centre alternative especially in 25,000-50,000 range. Author criticizes this approach for its political expediency and rural patronage. Importance of proximity and minimum-size, as substantiated in the past, ignored.

Hansen, N. M. Intermediate-Size Cities as Growth Centres. New York: Praeger Special Studies in U. S. Economic and Social Development, 1971.

Greater emphasis on growth centre theory than in 1970 book. Sub-divided into: the growth centre rational and growth centre applications. First section deals with growth centre theory from its beginnings in France in 1950's. Excellent review of contributors to date. Summary of growth centre experience in Great Britain, Italy, France, and U.S. Detailed summary of applications in Kentucky, Piedmont Crescent, Ozarks, and Texas.

Hansen, N. M. "Growth Centre Policy in the United States," in A. R. Kuklinski (ed.), "...Seven Case Studies," February 1971, 131-153, and reprinted in N. M. Hansen (ed.), Growth Centres in Regional Economic Development. New York: Free Press, 1972, 266-281.

Analysis of growth centre policies that have developed during the 1960's under U. S. Department of Commerce - ARC and EDA. Case of Appalachia, for example, located between two most developed foci in North America. Declining national significance of the area attributed to lack of urban centres able to sustain growth and offer desired services. Distinction made between: growth centre, growth area and hinterland. Heavy emphasis on highways and concentrated investment in centres offering prospects of employment growth along major axes. Listing of centres with their respective investments in Northern, Southern and Central Appalachia. In general, the investment has been more concentrated than might be expected from such a policy of allowing states to choose growth centres in more than 60 districts.

Second case of EDA which set out 5 inter-state regions. Designation on basis of series of criteria denoting chronic economic distress (unemployment, underemployment, population decline). Results show funds are far below needs to stimulate economies (see Duskin & Moomaw).

"Regional welfare syndrome" and critical size threshold (Berry) compared to the actual sizes of EDA centres and their declines in population offering little hope for growth.

Necessity of intermediate size centres and structured national migration policy plus human resource investment emphasis compared to simple public works.

Hansen, N. M. (ed.). Growth Centres in Regional Economic Development. New York: Free Press, 1972.

Recent upsurge in growth centre policies, especially in the U.S., but the theoretical basis and interdependencies with existing theories are vague or non-existent. Assimilation and summary of the papers included in this edited volume in light of their contribution to the growth centre notion.

Harper, R. A. et. al. "Recreation Based Economic Development and the Growth-Point Concept," Land Economics, 42, 1966, 95-101.

Recreational demand by urbanites seen as a major economic opportunity for revitalization of rural depressed areas. Brief discussion of the economic basis for a growth point as a combination of internal and external economies of scale which stimulate further concentration at the growth point. Over-emphasis of industrialization as means to economic growth - possible use of recreation shopping centres to capitalize on economies of scale.

Harris, C. C. & M. C. McGuire. "Planning Techniques for Regional Development Policy," Journal of Human Resources, 4, 1969, 466-490.

Techniques developed for the projection and analysis of the distribution of economic progress among 3100 counties in U.S. For various alternative national economic projections of employment by industry, regional (county-by-county) forecasts of employment made. The regional employment projections are matched on a county basis with estimates of county population under alternative assumptions as to 1966-75 migration. An analysis of the resulting potential imbalance between county employment and labour force results in estimates of "natural" economic force which precludes concentrations of economic distress. Note use of lagged equations to allocate regional employment.

Harris, J. R. "Urban & Industrial Deconcentration in Developing Economies: An Analytical Framework," Regional & Urban Economics, 1, 1971, 139-152.

Concern for increasing industrial concentration in primate centres. Method and analytical framework sought to determine the levels of social costs required to produce a given bill of goods when different constraints on spatial structure of activity are imposed (via techniques of mixed integer programming). Involves minimizing a function composed of social costs of primary factors of production, costs of imported and non-industrial intermediate goods. Constraints include: delivery requirements for demand of each commodity, limited supply of primary resources, geographical distribution of employment and levels of productive capacity of each region (integer values such that capacity is provided in even multiples) and economies of scale become important. Problems encountered in implementing the model because of extensive data requirements. Nevertheless, Kenya to be used as an example. Second state modification will include making the model dynamic over time. Also to include larger union of counties and other economic sectors.

Hart, T. The Comprehensive Development Area. Edinburgh: University of Glasgow, Social and Economic Studies, Occasional Paper No. 9, 1968.

Begins with historical review of Comprehensive Development Areas (CDA's) and their inception in legislation. Practical application of the planning and housing powers in Glasgow area (intraurban). Not of direct relevance to notion of growth poles because of emphasis on within-city and legislative machinery.

Hartley, D. D. "A Subregional Application of Regional Economic Growth Theory," Unpublished Ph.D., University of Kansas, 1963.

Harvey, D. W. "Models of the Evolution of Spatial Patterns in Human Geography," chapter 14 in R. J. Chorley and P. Hagget (eds.), Integrated Models in Geography. London: Methuen, 1967, 549-608.

No explicit mention of growth centres, but very relevant comments regarding effect of economic growth over space -- namely uniform, random, competitive and contagious. Latter two would appear relevant in the modelling of growth centres.

Hermansen, T. "Interregional Allocation Investments, An Elementary Model Approach to Analysis," Geneva: UNRISD, December 1968.

Hermansen, T. Spatial Organization and Economic Development - The Scope and Task of Spatial Planning. UNRISD/69/c.68.

Hermansen, T. "Service Trades and Growth Centres," Part IV of Regional Policy in EFTA - An Examination of the Growth Centre Idea. Edinburgh: University of Glasgow Social and Economic Studies, Occasional Paper No. 10, 1968.

Hermansen, T. "Growth Poles and Growth Centres in National and Regional Development - A Synthetical Approach Pt. 1 A Survey of Concepts, their Origin, Development and Application," Geneva: UNRISD, February 1969.

Aimed at spatial dimensions of economic development, in general, and development poles, in particular. Emphasis on reviewing and integrating various theories and conceptual frameworks.

Hermansen, T. "Expert Group on Growth Poles and Growth Centres," Geneva: UNRISD and European Co-ordination Centre for Research and Documentation in Social Sciences, November 1969.

Introduction to purpose and terms of reference for joint Geneva meeting and summary of papers and discussion that took place.

Hermansen, T. "Development Poles & Development Centres in National and Regional Development - Elements of a Theoretical Framework," in A. R. Kuklinski (ed.), "A Review of the Concepts and Theories of Growth Poles and Growth Centres," Geneva: UNRISD, 1970, 1-90.

Aimed at identifying and relating to each other, diverse theoretical concepts of development poles, in particular, and development, in general. Descriptive, positive (explanatory), normative and control (prescriptive) approaches set out in light of: theory of polarised economic development, central place theory, spread aspects of economic growth and diffusion literature.

Higgins, B. "Growth Pole Policy in Canada," in N. M. Hansen (ed.), Growth Centres in Regional Economic Development. New York: Free Press, 1972, 204-228.

Regional disparity as growing phenomena since 1940-1950 period and policies have been numerous to combat this trend. A review of the national legislation including: the Area Development Agency, the Atlantic Development Board, the Agricultural Rehabilitation and Development Act, the Quebec provincial legislation under ARDA and General Investment Corporation, and the Ministry of Regional Economic Expansion. A specific commentary on the Quebec situation with reference to its unique economy, occupational structure and spatial makeup.

Hirsch, W. Z. "Expenditure Implications of Metropolitan Growth & Consolidation," Review of Economics & Statistics, 41, 1959, 232-241.

Paper attempts to develop a theoretical framework to answer the question, what are the likely expenditures resulting from metropolitan growth and consolidation? Deductive hypothesis tested for 149 governmental units in St. Louis and for some Massachusetts cities.

Hirschman, A. O. The Strategy of Economic Development. New Haven: Yale University Press, 1968.

Early classic work on the need for inducements and a summary of both the theories of balanced and unbalanced growth. Discussion of investment choices and strategies in SOC and DPA. Chapter 10 (pp. 183-201) concerns growing points and lagging regions in light of interregional transmission of economic development via trickling-down and polarization.

Hodge, G. The Identification of 'Growth Poles' in Eastern Ontario. Toronto: Report to Ontario Department of Economics and Development, July 1966.

Rather than identify a specific set of growth poles, the study uses two recognized statistical techniques, factor analysis and multiple regression, to gain a perspective on urban development (i.e. kind of growth, kinds and locations of growth centres). Not sufficient to prescribe development on basis of a single variable (e.g. as Carol did); rather interrelatedness of a number of variables seems more significant. Note the assumption made that urban system seen as more variable and broader than that envisaged in the ARDA, ADA, BAEQ and ADB projects. Aim to identify underlying structural features of Eastern Ontario urban centres, to determine whether the structural features of present development are associated with growth or decline of Eastern Ontario urban centres and to clarify the relationships which are relevant to public policy. Concludes, on the basis of a cursory examination of density and spacing, that centres are too close to one another given today's mobility conditions. Note use of 'matrix of probabilities' to denote growth, stability and decline. Based on data availability

32 variables are used in factor analysis - done for entire region and then for two development regions contained within it. Note the very important conclusions that the more industrial development contributes to employment and investment, the less likely it is to experience a fast growth rate.

Hodge, G. "Urbanization in Regional Development: A Select Bibliography," CPL Exchange Bibliography #96, September 1969.

A bibliography prepared for CCURR structured around regional development policy, techniques of regional analysis, cities as economic growth poles, cities as social development poles, city systems and settlement patterns, city regions and regional government and urban migration flows.

Hoffman, C. "The Industrial Ecology of Small and Intermediate-Sized Technical Companies: Implications for Regional Economic Development," Discussion Paper No. 19, Centre for Economic Development, the University of Texas at Austin, May 1971.

Study attempts ecological and systems-oriented expansion of the locational requirements of small technical companies. Review of past literature shows that small technical companies require that a number of services and materials be available locally. Assessment of market location on locational independence-- separation into three groups based on local affinity. Subjective ranking of factors considered of importance to sample of individual companies, e.g. airline service, leasable facilities, urban environment, educational facilities.

Holm, P. "Physical Planning and Local Economic Development: Reflections on a Case Study," PRSA, 12, 1964, 29-45.

Long-term planning in Sweden broken down into physical (or land use) planning and economic planning. Inherent problems in forecasting for physical planning, especially using the conventional economic base, input-output or regional accounts methods. Case study of dynamics of local expansion where a large plant comes to a small town. Dynamics discussed with reference to structural changes in employment, to pattern of public investments, and to area income. Leading and lagging sectors cited.

Hoover, E. M. "Some Old & New Issues in Regional Development," Chapter 19 in E.A.G. Robinson (ed.), Backward Areas in Advanced Countries. London: MacMillan, 1969, 343-357.

Introductory remarks as to the renewed interest in regional development, followed with: relation between national and regional welfare, necessity of growth, jobs to people or people to jobs?, areas of need or areas of promise. Notion of growth centres based on development of centres based on their growth potential. Questions whether industrially-distressed areas can be grouped in same analysis with centres which have never experienced industrial growth when viewing growth potential. Raises two basic issues in the growth

centre arguments--(1) questions necessity of urban size and availability of infrastructure as prerequisites of growth potential; (2) and whether economic improvement actually diffuse out from centre to umland. Questions why multiplier effect should go from centre to hinterland and not equally as well vice-versa.

Also reprinted CRES Occasional Paper No. 5, University of Pittsburgh, 1967.

Hoover, E. M. An Introduction to Regional Economics. New York: A. A. Knopf, 1971.

Specific review of the role of growth centres to carrying out regional objectives and policies (pp. 277-286). Good basic review of location, regional economic growth, and spatial structure as directly relevant to growth centres. Review includes: the applicability of the strategy to different areas, their justification, their size and number and the role of migration to growth centres. Summary of regional growth policies in the U.S.

Hughes, J. T. & J. Kozlowski. "Threshold Analysis - An Economic Tool for Town & Regional Planning," Urban Studies, 5, 1968, 132-143.

Necessity of co-operation between physical planner and economists. Threshold analysis of planning decisions based on fact that development of an urban area encounters obstacles caused by topography, public utilities network and existing land uses. While these obstacles have obvious spatial interpretations, they may also be viewed economically as the capital expenditure required to overcome the threshold and the fact that the threshold may mark a new higher-cost period of development for the area. Separation into "quantitative" and "physical" thresholds as effecting urban growth. Threshold costs as those necessary to overcome threshold lines limiting physical development. Mention of application to determine 'growth points of a region'(p. 141). First developed by B. Malisz, The Economics of Shaping Towns. Warsaw: Polish Academy of Sciences, 1963.

Hultman, C. W. "Factor Migration: Trade Theory and Growth Centres," Discussion Paper No. 29, University of Kentucky, July 1970, 16 pp.

Examination of growth centre and polarization analysis within the framework of international trade theory. Latter recognizes comparative advantage dependent on relative factor endowments. Classical trade theory hindered by static nature and by assumption of perfect factor immobility. In trade theory, despite the gains from trade to all participating regions, a condition of cumulative divergence in incomes among regions is not ruled out. Largely a discussion of polarization concept put forth by Hirschman and its surmountable shortcomings.

Hurter, A. P. Jr. & L. N. Moses. "Regional Investment and Inter-regional Programming," PRSA, 13, 1964, 105-119.

Recent interregional, interindustry techniques that have followed the Isard/Leontief effort are not amenable to empirical testing. A linear programming model is used to illustrate alternative investment choices "among all industries within any given region; all regions for any given industry; all transport linkages between regions and the transport facilities linking regions and the capacity for direct production within them" (p. 105). "...thereby possible to evaluate the effect of possible governmental actions on depressed regions in a partially planned economy. The problem of depressed areas can be characterized as one in which the depressed area does not have sufficient 'locational pull' to attract new industries" (p. 114).

International Information Centre for Local Credit. Government Measures for the Promotion of Regional Economic Growth. The Hague: Martinus Nijhoff, 1964.

Iowa State University, Department of Economics. The Role of Growth Centres in Regional Economic Development. Washington, D.C.: U. S. Department of Commerce, Office of Regional Economic Development, September 1966.

One of eight papers prepared for the Office of Regional Economic Development to examine the role of growth centres in regional development. Concerned with identifying a growth centre, and economic development region and economic development district, and with policy implementation necessary as well as the adequacy of existing federal legislation (appendix). Discussion of three hypothetical districts. Note bibliography.

Isard, W. & D. F. Bramhall. "Regional Employment and Population Forecasts via Relative Income Potential Models," PRSA, 5, 1959, 25-47.

Extension of relative income potential models (subset of gravity models) from traditional static use to forecast regional growth through time. Regions develop based on: their own assets which attract new industries; the growth of the nation and the change in the region's position vis-a-vis other regions in the nation. Implicit to the notion of growth centres because of the "growth-inducing effect" (p. 32) of any dollar of new income on a region, which varies inversely with distance. See also comments by E. J. Taaffe, pp. 49-50.

Isard, W. & J. H. Cumberland (eds.). Regional Economic Planning: Techniques of Analysis for Less Developed Areas. Paris: OECD, Papers and Proceedings of Bellagio, Italy Conference 1960, 1961.

Papers summarizing current status of national planning throughout the world. Then analysis of certain structural problems common to most areas striving for industrial and urban growth. Finally a discussion of "partial analytic techniques". See paper by J. R. Boudeville, pp. 377-397 for specific reference to development poles.

James, B.G.S. "The Incompatibility of Industrial and Trading Cultures: A critical appraisal of the growth point concept," Journal of Industrial Economics, 13, 1964, 90-94.

Examination of possible incompatibility of local supplier and new growth industries shown to exist in Western Scotland. Expectations too high for such growth industries. Needs suggested to overcome this alienation.

Jansen, A.C.M. "The Value of the Growth Pole Theory for Economic Geography," Tijdschrift voor Economische en Sociale Geografie, 61, 1971, 67-76. (note Dutch references, although not in English).

Brief review of origin of growth pole theory (both functional and geographical). Four polarization phenomena for functional side - technical, psychological, geographical and income from Vanneste (1967) seen of limited relevance. Relationship of growth pole theory to early French economists, to geographers and to American regional economists with mind to relevance to economic geographers (e.g. Myrdal, Keeble, Fred).

Kaldor, N. Strategic Factors in Economic Development. Cornell: New York State School of Industrial and Labour Relations, 1967.

Part I concerned with increasing returns in industry with respect to gap between growth in population and economic development. Note Verdoorn Law relating productivity and output growth in regression study. Characteristics for self-sustained sectoral growth. Discussion with respect to developed countries. Underdeveloped areas seen as 'growth points'.

Karpov, L. N. and V. M. Gokham. "Peculiarities of Modern Urbanization of Production," Vienna: UNIDO, Interregional Seminar on Industrial Location and Regional Development, MINSK, August 1968.

- Keeble, D. R. "Models of Economic Development," in R. J. Chorley and P. Haggett (eds.), Models in Geography. London: Methuen, 1967, 243-302.

Geographers have been lax in this field (i.e., idiographic versus nomothetic) compared to economists. Breakdown of economic growth models based on spatial content and scale coverage (p. 247). Examination of topology in more detail with discussion of examples under each class. Specific discussion of growth pole 'model' (pp. 281-287) - first as a descriptive device and as further extended to yield a 'bona fide' model. Wide-ranging summary of relevant economic and geographic literature.

- Kendrick, David. "Mathematical Models for Regional Planning," Discussion Paper No. 17, Centre for Economic Development, The University of Texas at Austin, December 1970.

Distinction made between regional and national economic models with respect to: determination of interregional commodity flows, mobility attributed to factors of production (capital, labour, land and water), treatment of transportation costs and the use of various aggregation procedures to reduce data requirements. Four methods used to determine interregional commodity flows - export production, import-use, gravity model and cost minimization. Sectors also partitioned into regional, national and international. Use of single period models - although it may model the changes in the economy between base period and a target year - for both simulation and optimization techniques. Modifications necessary to generate multi-period model alluded to, although not expanded in full.

- Kiiskinen, A. "Regional Problems and Policies in Finland," FRSA, 14, 1965, 91-105.

Examination of policies to carry out regional development under the headings of: regional income disparity, structural unemployment and concentration of activities. Myrdal's spread and backwash effects viewed on the Finnish context.

- King, L. J. et al. "The Analysis of Spatial-Temporal Patterns in U.S. Metropolitan Growth, 1957-1969," mimeo, 1971.

Attempt to differentiate between U.S. cities 1957-1969 on the basis of their growth curves compared to cross-sectional studies to date. Inductive insight into intensity and timing of economic growth. Use of factor analysis where the independent variable is some function of time and the dependent variable is observed at discrete time intervals. Concludes (p. 15) with further application of this notion to the growth pole and growth centre concepts.

King, L. J. & G. J. Papageorgiou. "Models of Spatial Growth Poles and the Forecasting of Regional Economic Development," research proposal submitted to Canadian Council on Urban and Regional Research, mimeo, 1971.

A general proposal for research in modelling a system of growth poles and isolating certain important economic growth variables. Modelling to have general application, though specifically derived in Ontario.

Klaassen, L. H. Area Economic and Social Redevelopment. Paris: OECD, Monograph No. 1 in Developing Job Opportunities, 1965.

Study of redevelopment of industrially distressed areas. Definition of notions of area and distressed area and then formulation of a simplified model of an area with respect to population growth, migration, and income. Summary of central government policies on area development with reference to industry, employment and labour training.

Klaassen, L. H. Methods of Selecting Industries for Depressed Areas, Paris: OECD, Monograph No. 2 in Developing Job Opportunities, 1967.

General summary of area redevelopment policy and role of industrialization policy. Industries to be selected are labour-intensive growth industries. Size of an industry measured by employment and labour intensity by proportion of value-added paid to employees. Method for selecting industries based on weighted inter-industry relationships (modified and elaborated Perloff-access approach). Carried out with respect to electronic, glass and optical industries.

Klaassen, L. H. Social Amenities in Area Economic Growth, Paris: OECD, Monograph No. 5 in Developing Job Opportunities, 1968.

Examination of non-economic considerations which have a bearing on the attractiveness of an area in the case of redevelopment. Especially concerned with welfare improvements stemming from them, rather than the simple economic benefits accrued by certain developments. Note the use of a simplified model to describe the process of development with respect to the role of amenities.

Klaassen, L. H. Growth Poles: An Economic View. Rotterdam, March 1969.

Review of basic/non-basic concept and then extended to input-output framework covering demand, and attraction model covering supply. Notions generalized to give some elements for natural growth. Then discussion of policy changes affecting induced growth. Allied discussion of minimum size and costs and revenues associated with various city sizes.

Klaassen, L. H. "Growth Poles in Economic Theory and Policy," in A. R. Kuklinski (ed.), "A Review of the Concepts and Theories of Growth Poles and Growth Centres," Geneva: UNRISD, November 1970, 91-144.

Same paper as that written in Rotterdam, March 1969, entitled Growth Poles: An Economic View.

Klaassen, L. H. & A. C. van Wickeren. Interindustry Relations: An Attraction Model. Netherlands Economic Institute.

Korner, Heiki. "Industrielle Entwicklungspole als Instrumente der Regionalpolitik in Entwicklungs - Landern," Kyklos, 20, 1967, 684-708.

Developing countries unable to tackle regional development via adoption of one all-embracing action. Discussion therefore, of inducement-mechanisms to convey impulses of economic development from "leading regions" or "growing points" to lagging areas (Hirschman and Perroux). Some comments on the possibility of promoting small-scale industries in a polarized region by optimizing the development pole's set of industries.

Kuehn, J. A. & L. D. Bender. "An Empirical Identification of Growth Centres," Land Economics, 45, 1969, 435-443.

Means of identifying growth centres within economic development regions sought. Development seen as a process producing sustainable income changes relative to the nation. More limited objective as an attempt to rank the potential for employment increases, given the infrastructure already in place, and the changing employment structure. Use of employment data on county basis. Calculation of employment changes for each census period in two forms - competitive and composition. Successive pairing of employment observation for each county via correlation coefficients; summed for each county to give an index - low indicating dissimilarity, high indicating similarity. Therefore, low index in an area of eroding economy is a strong growth pole. Notes number of his own limitations, plus personal doubts as to use of correlation coefficients, usefulness of low and high index and fruitlessness of exercise in light of initial assumption.

Kuehn, J. A. "Highway Impacts on Ozark Incomes and Employment," Unpublished Ph.D. thesis, University of Missouri at Columbia, 1970.

Kuehn, J. A. & J. G. West. "Highway and Regional Development," Growth and Change, 2:3, 1971, 23-28.

Examination of relationship between highways and economic development particularly in the Ozarks. Review of the pros and cons for highway construction as an instrument in development planning. Use of rank correlation coefficients to determine if highway types were related to income (only moderate support for correlation). Again little evidence found between highway type and either employment rates or employment type. Within the manufacturing sector there was some significant relationship with highway type. Results, in general, would seem to indicate that highways have not been crucial factors in economic development. Only temporal sequence for local roads was observable and then preceding employment. Therefore, highways alone are insufficient to generate economic development.

Kuehn, J. A. & L. D. Bender. "An Empirical Identification of Growth Centres: Rejoinder," Land Economics, 47, 1971, 102-104.

Four central points answered: practicality of 'legislative intent' when quantified social welfare function not available, gross out-migration data deceiving unless interpreted in light of in-migration and intra-migration data, small town growth not as clear-cut as laid out by Berry, and support for methodology found in census data.

Kuklinski, A. R. "The Role of Growth Poles & Growth Centres in Regional Development. Materials for Discussion," Geneva: UNRISD, August 1968.

Questionnaire circulated in January 1968 focussing on 4 questions re: existence, importance, implementation and advantages or disadvantages of growth pole or growth centres research. Answers included from: P. D. Malgavhar (India), B. J. Gruchman (Libya), Z. Pioro (Tanzania), J. Labasse (France), J. Paelinck (Belgium), M. D. Thomas (N. Ireland), P. O. Huiginn (Ireland), L. Kosegi (Hungary), P. Turcan (Austria), M. Ciechocinska (Poland).

Kuklinski, A. R. "Growth Poles and Growth Centres in Regional Policies & Planning: Remarks for Discussion," Geneva: UNRISD, October 1968.

Outline for discussion: demand for growth pole and growth centre policies, size of growth poles and growth centres, design and implementation of growth centre policies, policies on national and regional scale, and work in multidisciplinary and interdisciplinary areas.

Kuklinski, A. R. (ed.). "Growth Poles and Growth Centres in Regional Policies (Seven Case Studies)," Geneva: UNRISD, 1971.

Basically two types of social and economic policies which promote concept of polarized development - (1) the investment policies where the growth centre strategy is applied to improve the efficiency of the investment process (external economies, economies of scale and multiplier effects) and (2) modernization and reconstruction policies which use growth pole strategy to transform existing pattern of settlements. Several very broad objectives outlined as task for interdisciplinary research.

Lagos, G. "Hacia una Estrategia de los Poles de Integración," Boletín de la Integración, March 1966.

Laber, G. "Employment Growth and Changes in Unemployment at the County Level," in N. M. Hansen (ed.), Growth Centres in Regional Economic Development. New York: Free Press, 1972, 282-293.

In light of the Federal policies (U.S.) aimed at the county level, this study investigates the changes in county unemployment between 1950 and 1960. A conceptual approach to employment growth and unemployment change is forwarded, noting that an increase in the former may also cause an increase in the latter. Migration, level of family income and natural birth and death rates are used to interpret the significance of these relationships in a regression model. Some tentative conclusions are offered regarding unemployment rates, their stability and some policy implications (questions the validity of unemployment rates as a measure of growth centre policy success).

Lasuen, J. R. "Regional Income Inequalities and the Problems of Growth in Spain," PRSA, 8, 1962, 169-188.

Disparities of growth impact felt regionally throughout Spain. Regression analysis of income distribution data for 1956 and 1958 for various sectors of the economy and areally for other nations and for provinces within Spain. Examination of backwash and spread effects (Myrdal) with reference to Barcelona, Bilbao and Madrid for both labour and capital. Issue of external economies as over-emphasized basis for growth, compared to actuality of increased costs to other industries.

Lasuen, J. R.; A. Lorea & J. Oria. "City Size Distribution and Economic Development," Ekistics, 24, 1967, 221-226.

Investment criteria for locating economic development can be derived from a model of city-size distribution and economic growth. 'Economic growth' seen as natural compared to economic development which is planned. Use of Spanish cross-sectional data and correlation and regression techniques to fit to Zipf's original model. Results in several clearly laid out conclusions and suggestions for a further testable model based on hypothesis of degree of rank-size, stage of economic development and per capita income. Only implicitly relevant to modelling of growth pole-based urban system.

Lasuen, J. R. "Urbanization Hypotheses and Spain's Cities System Evolution," Journal of the Institute of Social Studies (forthcoming), The Hague: paper presented to the Workshop on Regional Development Planning, 1967.

Lasuen, J. R. "On Growth Poles," Urban Studies, 6, 1969, 137-161, and reprinted in N. M. Hansen (ed.), Growth Centres in Regional Economic Development. New York: Free Press, 1972, 20-49.

A critical review of the growth pole concept with an aim towards clarity in terminology and theory, particularly with reference to the tenets on space, urban growth, and the diffusion of innovations.

Lasuen, J. R. "Urban Hierarchy Stability and Spatial Polarisation: A Rejoinder," Urban Studies, 7, 1970, 84-88.

Attempt to clarify some of the points made in an earlier paper (1969); also a rejoinder to Hansen (1970). Lasuen notes that significant confusion surrounding his and Hansen's use of the term "polarisation." Policies recommended by Lasuen for developing areas admitted as not equally relevant for U.S.

Lasuen, J. R. "Some Traits of the Process of Growth of the System of Nations: Stability, Polarization, Diffusion," Economie Politique, forthcoming.

Lasuen, J. R. "A Generalization of the Growth Pole Nation," IGU Commission on Regional Aspects of Economic Development, n.d.

An excellent in-depth insight from which to begin modelling. Aim to extend some of growth pole notions to related fields of urban economics. Central ideas of the concept (p. 2) seen as descriptive, structural and behavioural. Necessary re-working of growth pole theory in its present state so that it is not conditional, allows for behavioural and not merely structural explanations. Begins by examining the offerings of location theory - theory of structure of sites which is composed of theory of supply areas (land use theory) and theory of delivery areas (site choice theory). Note relationship between central place theory and growth pole theory (p. 12). Attempted redefinition of the two in light of their similarities. Necessary to abandon some of their specific elements.

Lawrence, B. "Growth Centre Determination for Del Rio," Discussion Paper No. 7, Centre for Economic Development, The University of Texas at Austin, June 1970.

Examination of the implications of attempts to strengthen Del Rio's relationships with Laredo compared to San Antonio as suggested by regional economists. Latter have chosen a centre with greatest potential of growth compared to EDA policy of defining a development district first. Examination of relationships of people from Del Rio with respect to -- minimum critical population size, forms of economic organization, matrix of social attitudes and specific regional characteristics. Set of criteria established to select growth centre that maximizes economic opportunities for Del Rio. Conclusion that past studies (Milne and Curley) have not yielded a determinate solution based on their identification criteria.

Leven, M. R. "The Big Regions," JAIP, 34, 1968, 66-80.

Summary of U. S. economic development regions after the implementation of the Public Works and Economic Development Act (1965). Based on Appalachian experience, author foresees new regional emphasis on physical and human resources in these areas. Summary of Appalachia and its prototypes (TVA). Discussion of outmigration as major symptom common to all areas. HUD work on Model Cities versus EDA work in human resources and infrastructure..

Levitan, S. A. Federal Aid to Depressed Areas: An Evaluation of the Area Development Administration. Baltimore: Johns Hopkins Press, 1964.

Area Redevelopment Act (1961) under J. F. Kennedy as introduced by Senator Paul H. Douglas (Illinois). Originally introduced in 1955 amidst rising unemployment. Short history of legislation. Area designation and characteristics. Note that it was originally designed for urban areas suffering from chronic unemployment (unemployment compared to underemployment). Other characteristics seen as signals of depressed status - education, income, depleted resources, etc.... Industrial and commercial loans - size, type, qualifications, distribution. Loans for public facilities. Training for unemployed. Implicitly these urban entities submitted OEDP's (overall economic development plans) and were growth poles; Required regional integration and approval by Congress and State government.

Lewis, J. P. "The Problem of Growth Centres," paper read at Hyderabad Seminar on Accelerating District Industrialization, 1966.

Lewis, W. C. & J. R. Prescott. "Urban-Regional Development and Growth Centres: An Econometric Study," JRS, 12, 1972, 57-70.

Econometric model designed to analyze the internal and external structure of labour market regions in the U.S. in the growth centre context. Analysis at functional economic area (FEA) level of aggregation. Systematic sample of centres based on 25-100,000 (1960) population, independence from large urban centres and variety of economic sectors in FEA. Cross-sectional analysis for 1958 and 1963. Thirteen structural equations describe the relationship between endogenous and exogenous variables with the strength of such determinants indicating the extent to which the growth centre policy is compatible with the development patterns in the model. Conclusions seem to indicate that growth patterns within the FEA are not highly complementary with the existing investment strategy.

Lithwick, N. H. & G. Paquet. "Urban Growth and Regional Contagion," chapter 2 in N. H. Lithwick and G. Paquet (eds.), Urban Studies: A Canadian Perspective. Toronto: Methuen, 1968.

Interaction between city and region reviewed, based on concept of a region as homogeneous, then refined to include cause and effect, and finally a functional region. Résumé of economic development in general, and specifically in the Canadian context. Mention of growth poles in this context--spatial implications of regional contagion also summarized. For example, it is noted that "the implementation of industry as a solution (to a deteriorating economic position) misses the point, since industrialization can lead only to self-sustaining growth in an urban market place where industrial interdependencies are maximized" (p. 37).

Lithwick, N. H. Urban Canada: Problems and Prospects. Ottawa: Central Mortgage and Housing Corporation, 1970.

Review of the process of urbanization in Canada in terms of its early history (staple exports as generating growth and the shift to endogenous development). Reference made to polarization in both economic and demographic sectors (especially migration). Summary of current public policy and directions necessary in future to achieve several optional urban forms. The summary of urban policy by provinces is especially relevant with references to policies applying to selective points of growth.

Lombardini, S. "L'entreprise motrice et la distribution spatiale des activités économiques," Economie appliquée, 18, 1965, 431-447.

Luttrell, W. F. Industrial Complexes and Regional Economic Development. Paper presented to regional planning conference, Ireland, 1969.

Luttrell, W. F. "Industrial Complexes and Regional Economic Development in Canada," in A. R. Kuklinski (ed.), "... Seven Case Studies," February 1971, 85-115.

Summary of industrial development potential as assessed by Economic Consultants Ltd. for Atlantic Provinces Economic Council. Approach to problem of growth centres via industrial complex analysis -- interpreted in light of interrelatedness and proximity. Interrelatedness takes the form of: direct use of resources. Importance of industrial composition, e.g., market-oriented plants, resource-located plants, neutral or multi-choice plants (footloose) and complex-oriented plants. Introduction of complex of metal-working industries recommended for New Brunswick. Will require market analysis to determine what industries could survive. Selection of Saint John based on its size (100,000), present labour force, transportation foci, existing infrastructure, and industry. Critical phase for self-sustenance seen as about 8,000 workers employed in incoming units.

McCrone, G. Regional Policy in Britain. London: Allen and Unwin, University of Glasgow and Economic Studies No. 15, 1970. Especially 208-222 on "Growth Areas: The Case for Concentration."

Concept dates back at least to pre-war days (Barlow Commission). Emergence in post war years associated conceptually with industrial development, but even to 1960 was only implemented with pockets of unemployment (development districts). Political problems inherent in not selecting enough growth areas, compared to economic reality of selecting too many. Review of some of legislation in Scotland, England and Ireland (note references given). Case in favour of growth areas based on premise that: public expenditure to promote development, particularly on infrastructure, will be more effective if concentrated in certain clearly defined areas, and that new industrial development is more likely to be successful and become self-generating if external economies are built up and related industrial processes established together. Variation in case for growth areas from under-developed agricultural regions and depressed industrial areas.

McGuill, G. "Dundalk: Study of Growth Centre." Unpublished B.A. University College Dublin, 1971.

Reference in Baile Geographical Society Bulletin.

McNulty, M. "Urban Structure and Development: The Urban System of Ghana," Journal of Developing Areas, 3, 1969, 159-176.

Multivariate factor analysis of structure of Ghanaian urban system with a discussion of changes attributable to development process. Notion of spatial and abstract poles implicit in much of findings.

MacLennan, M. C. & D. J. Robertson. "Regional Policy in the United Kingdom," chapter 3 in E.A.G. Robinson (ed.), Backward Areas in Advanced Countries. London: MacMillan, 1969, 36-51.

A discussion of the main problems necessitating a regional policy; then some amplification of the objectives sought and the measures employed to meet this end; and then the relationship between national and regional planning. Implicit to the notion of growth poles with special reference to development areas.

Madden, J. L. "Metropolitan Growth Centres in Historical Perspective: Patterns in Economic Growth in Selected Cities in the U.S. 1899-1964: Pilot Study in Econometric History," Lexington: Discussion Paper No. 35, University of Kentucky, December 1970.

Historical analysis of city growth in the U.S. between 1899 and 1964 with particular attention to the supply factors that have affected the growth process. Contention that economic growth of a region can be measured in terms of changes in level of income and changes in the various supply factors that account for this change in income. Ideally, changes in the metropolitan personal income would be dependent variable (proxy of value-added in manufacturing). Growth then seen analogous to production theory. Use of two-stage least squares to estimate the linear equations of the model. Some suggestions in progress for further research. Pilot study equations were both time series and cross-sectional. Results showed that change in the level of manufacturing particularly those associated with new lead manufacturing sectors, has had the greatest single impact on the differential rates of income growth.

Maki, W. R. "Growth Centres and Regional Development," Supplement C in The Role of Growth Centres in Regional Economic Development. Ames, Iowa: Department of Economics, Iowa State University, 1966.

Discussion of existing growth centres with respect to identifying criteria (population, spatial and functional position, income and employment). These five criteria for identifying a growth centre are discussed under three major headings--state trends in employment and income; urban trends in population, employment and income; and relation of urbanization to state and regional factors in economic development. It is established that larger centres tend to grow more than smaller centres and also exhibit greater stability in growth. Changing competitive position of industries in U.S. major geographical regions. Based on presented summary data, the 5 earlier criteria are redefined as growth centre characteristics:

- (1) growth centre is often times the largest urban place in a development district,
- (2) growth centres has often times the highest median family income of any urban place in a development district,

- (3) growth centre has often times the largest number of job opportunities of any urban place in a development district,
- (4) growth centre is typically a 4th order urban place,
- (5) growth centre is a nodal point in transportation and communication network.

Manners, G. "Areas of Economic Stress--The British Case," 139-164 with Comments in W. D. Wood and R. S. Thoman (eds.), Areas of Economic Stress in Canada. Kingston: Industrial Relations Centre, Queen's University, 1965.

Brief resume of British experience of past 30 years with respect to needs, legislation and policy. Initial designation was to relieve areas of chronic unemployment.

Marcus, M. "Agglomeration Economies: A Suggested Approach," Land Economics, 41, 1965, 279-284.

Review of concept of agglomeration economies and their identification. Empirical study carried out for certain industries adjacent to New York City. Of implied relevance to notion of growth poles in light of scale, industrial localization, and urbanization economies which are basic to sustaining any growth pole.

Martin, J. "Le Concept de pôle de croissance," thèse, Université de Montréal, 1965.

Maton, J. "Regional Research and Development Planning. The Case of East-Flanders. The Economist's Contribution," PRSA, 14, 1965, 77-78.

The complex role of the economist is more complicated than simply feeding forecasts to the land use planner, because of the inter-related nature of so many variables such as land, labour and capital. Surveys established to measure the effect of "development poles" (p. 78) on production, labour markets and retail trade. Forecasts and objectives outlined, followed by feasible alternatives and the suggested plan.

Meyer, J. R. "Regional Economics: A Survey," American Economic Review, 53, 1963, 19-54.

A Review of definitional problems (e.g., defining regions), problems of regional economic policy (origin/destination studies, gravity model formulations), theoretical formulations (location theory, multiplier theory, input/output analysis and mathematical programming). Multiplier theory implicit in early economic base work dating to H. Hoyt, R. B. Andrews; comparative cost analysis and industrial complex analysis. Input/output analysis often simplified in 5 ways: aggregation of rows and columns for a region, neglect interindustry relations, and concentrate on interregional trade patterns, define interregional trade coefficient for each commodity as an input, balanced regional growth model (Leontief and Isard), gravity-type structural equations to explain magnitude of interregional flow (Leontief and Strout). Mathematical programming suffers from large data requirements which are rarely available and from complexity of assumptions necessary in still-basic operational models. Two basic approaches seen in above regional analyses--emphasis on historical, developing and behavioural characteristics; and quantification, forecasting and developing a logically rigorous framework.

Miernyk, W. H. et. al. Simulating Regional Economic Development: An Interindustry Analysis of the West Virginia Economy.
Lexington, Massachusetts: D. C. Heath & Co., 1970.

Impact of growth in various sectors on other sectors can be analyzed for a dynamic model -- both direct and indirect. Able to evaluate via comparative analysis the "best" alternative for development on the basis of the capital/output ratio and the employment multiplier. Discussion of both income and employment multipliers and investment in human resources.

Milhau, J. "La théorie de la croissance et l'expansion régionale," Economie appliquée, 9, 1956, 349-366.

Milhau, J. "Economie régionale et pôle de croissance," Revue du Travail, 9, 1958, 1141-1150.

Miller, D. "An Essay on Growth Pole Theory," The Monadnock, 45, 1971, 40-42.

Brief review of inception and notion of growth pole theory. Two types seen as natural and induced. Models as dynamic, cyclical and cumulative. Missing elements include: criteria to determine location of the growth pole and mechanism to encourage innovative industries to locate at certain points.

Milne, N. D. "Examination and Redefinition of EDA Districts," Discussion Paper No. 1, Centre for Economic Development, The University of Texas at Austin, December 1969.

Local needs and wishes formulated under District Councils under EDA's economic development district program. Involves co-ordination of government programs at all levels in a combined county area. Aim is to pool resources of 5-15 counties to offer more substantive development base--actual "pooling" is questionable eg: good highway in one county, and a good sewer system in another. Necessity of a viable urban area within a county cluster to ensure prospects for in-migration from unemployed hinterland. EDA handbook calls for grouping of distressed and healthy areas. However, present policy delimits an area and then finds urban centre within it with most potential. Support for Office of Business Economics (OBE) nodal-functional regions based on economic cohesiveness. Problem of defending political boundaries when an economic solution is sought.

Milne, N. D. "Selecting Growth Centres," Discussion Paper No. 6, Centres for Economic Development, University of Texas at Austin, April 1970 and revised February 1971.

Examination of the current growth centre policy and proposal of an alternate growth centre policy deriving a new list of growth centres which would better serve the people of lagging regions. Question of people to jobs or jobs to people (migration). EDA tends to encourage migration only to development centre within the depressed region; tends to develop individual real estate rather than individual's welfare. Criticism of EDA's ordinal ranking system based on 7 criteria: proximity to redevelopment area, rate of population growth, labour force participation rate, median family income, service and wholesale activity, per capita retail sales, and transportation facilities subject to geographical and political considerations. Revised criteria put forth and a new ranking suggested (variables are: employment growth, migration from lagging region to centre, migration per population x 100, percentage employment change, unemployment rate, salary increase, SMSA mean income). Aimed at maximum potential employment and maximum potential salary.

Milne, N. D. "Urban Growth and Growth Centres in Texas," Discussion Paper No. 18, Centre for Economic Development, The University of Texas at Austin, March 1971.

Comparison of economic growth for cities in Texas for 1950-1970 period on basis of population and welfare. Graphic display of four quadrants based on simple averages of population growth and median family income. Comparison of industrial structure of each urban centre relative to the system as a whole. Use of location quotient (from L. Ashby). Calculation of a diversification index from LQ. Average value of LQ obtained by subtracting 1 from LQ to obtain absolute deviation about mean. Therefore a high DI has a less diversified employment structure. Anticipated that a lower DI infers greater stability. Strategy suggested as combination of human resource development coupled with relocation of workers in selected growth centres. Comparison of cost and success of relocating workers as compared to subsidizing industry to relocate. Policy-oriented growth centre should have strong linkages with lagging regions to provide new jobs.

Milne, N. D. "An Empirical Identification of Growth Centres: A Comment," Land Economics, 47, 1971, 101-102.

Notes the suboptimality of Kuehn and Bender's selection of growth poles. Raises issue of their implicit goal of developing a piece of real estate rather than providing for the people of that area. Failure of their method to evaluate whether there has been any contribution to regional growth in employment or how successful the public investment might be at this site. Misapplication of term 'growth centre' in their example, because many areas outside the region provide more employment for the people of the region than was done locally. Note observation of Berry's that centres less than 50,000 have no effect on their hinterland and so are of little importance for inducing public resources in them. Necessary to select growth centres from a comprehensive national perspective compared to EDA policy for allowing each development district to select its own growth centre.

Misra, R. P. "Diffusion of Information in the Context of Development Planning," Lund Studies in Geography--Information system for Regional Development.

Misra, R. P. Regional Planning - Concepts, Techniques, Policies and Case Studies. The University of Mysore Press, India, 1969.

Misra, R. P. "Growth Pole Hypothesis Re-examined," in A. R. Kuklinski (ed.), "A Review of the Concepts and Theories of Growth Poles and Growth Centres," Geneva: UNRISD, November 1970, 233-253.

Attempt to put forth a few ideas from empirical works carried out in India in light of four major weaknesses in the "theory" to date: questionable relevance to regional planning, junctional rigidity, lack of hierarchical order and the conflict between trickle-down and polarization processes. In the case of hierarchical order, note the distinction between growth point, centre and pole.

Misra, R. P. "Growth Poles and Growth Centres in the Context of India's Urban and Regional Development Problems," A. R. Kuklinski (ed.), "...Seven Case Studies," Geneva: UNRISD, February 1971, 1-22.

Review of use of growth centre policy in India as a solution to rapid urban growth and urbanization, shortage of urban services, and poor distribution of industrialization. Large scale industrialization not seen as only solution -- more necessary human transformation. Initiation of Five Year Plans in 1950. Results to date disappointing, leading either to centralized concentration or complete decentralization. Necessity of using growth centres to transform agriculture. Call for growth poles (national level), growth centres (regional level), growth points (sub-regional level) and service centres (local level) -- a hierarchy of development foci.

Moseley, M. J. "The Use of Factor Analysis in the Identification of Growth Centres in East Anglia," Reading Geographer, 2, 1971, 50-57.

Excellent introduction to muddle surrounding the notion. Confusion over: Geographic versus economic space (centre and pole respectively); reality versus conceptual tool; normative or positive; past, present or future; nature of growth; nature of centrality; a point in space or an area; and other difficulties (size, threshold, self-sustaining growth). Only empirical attempts at identifying growth centres include: Carol (1966), Kuehn and Bender (1969); Casetti, King and Odland (1970) and Hodge (1966). Use of principal components analysis on variables relating to change in urban entities in East Anglia. Only the first component relating to population and employment proved significant and on the basis of this factor some ordering could be made of the centres as stagnant and growth.

Myrdal, G. M. Economic Theory and Underdeveloped Regions. London: Methuen, 1963.

Basic text on regional economic inequality with respect to migration, capital movement, "spread" and "backwash" effects. Although not directly related to growth centres, there is an extensive part on public role in such an unbalanced economy.

Nekrasov, N. "Problems of Distribution of Industry in the U.S.S.R. (Theory & Practice)," Vienna: UNIDO, Interregional Seminar on Industrial Location & Regional Development at Minsk, 1968.

Neutze, G. M. Economic Policy and the Size of Cities. New York: Augustus M. Kelley, 1967. Canberra: Australian National University Press, 1965.

Aim to define and discuss the economic arguments for and against decentralization in the Australian context. Related to the notion of planned new towns, but not directly to that of depressed areas. Decentralization defined as "a policy which is directed at diverting some of the geographically mobile activities in the economy away from the metropolitan centres in which they would otherwise locate themselves," (p. 8).

New England Regional Commission, Staff. "Maine Growth Centre Program," Economic Development Administration, U. S. Department of Commerce, mimeo, n.d.

Purpose of project was to select an existing centre based on its demonstrated, and potential for, growth. Aim to further such growth via raised per capita income and/or increased employment. Elaboration of potential centres with emphasis on Bangor, Brunswick and Lewiston/Auburn. Comparative data presented on economic activity, local government finance, public services federal program support, housing, transportation and local attitudes.

Newman, J. New Dimensions in Regional Planning: A Case Study of Ireland. Dublin: An Foras Forbartha, 1967.

Intention of establishing urban growth centres very explicitly set out in Irish regional planning. Note the emphasized relationship between economic growth and urbanization. Size of growth centres left hazy initially - i.e. primary social and economic growth centres and secondary centres. A large industrial estate type of growth centre was argued for over use of secondary centres. Alternative form of linear development outlined.

Nichols, V. "Growth Poles: An Investigation of their Potential as a Tool for Regional Economic Development," Philadelphia: RSRI Discussion Paper 30, May 1969.

Based on the assumption that a regional development policy is desirable, an examination of the mechanism of growth poles is made. Most of attention centered on inter and intra urban growth and diffusion for distributing such growth.

Nichols, V. "Growth Poles: An Evaluation of their Propulsive Effect," Environment and Planning, 1, 1969, 193-208.

Examination of the contention that economic growth will diffuse naturally from a medium-sized growing urban centre to its umland. Assessment of some existing theoretical and intuitive ideas concerning the spatial diffusion of economic development via statistical tests on Georgia data. Scepticism of 'trickling down' and 'spread' effects of economic development in light of anticipated concentration and polarization. Five points raised in support of this contention: (1) uncertainty of diminishing returns with increasing size of prospering town, (2) imperfect knowledge of investment benefits in city vis-a-vis periphery, (3) uncertainty with respect to other investor's actions, (4) inelastic demand for primary goods, therefore few of growth gains transferred to tributary area and (5) questionable benefit of present rural/urban migration. Regression of increase in per capita retail sales versus increases in median income proven of little statistical significance; plot of residuals therefore of marginal value. Examination of increases in median income regressed against increases in population proved to be significant. Analysis of residuals described graphically, especially with reference to hierarchical and contagious diffusion of growth.

Nikolajev, S. A. "Territorial Division of Labour & Distribution of Productive Forces," Vienna: UNIDO, Interregional Seminar on Industrial Location & Development, Minsk, 1968.

North Carolina. Plan for Public Investment in the North Carolina Coastal Plains. State Planning Division, North Carolina Department of Administration, March 1971.

State Investment Plan is viewed as central for implementation of regional plans for orderly and accelerated economic growth of 45 Coastal Plains counties. Six major programs of Commission have emphasized: education and manpower training, industrial development, agriculture, marine resources, tourism and transportation. Review of past policies and financial breakdown of Commission. Summary of state economic conditions as a prelude to outline of strategy for development. Growth centre concept central to Commission philosophy and as allocation mechanism for public investment. Development of an "index of concentration" to identify growth areas on county basis. Breakdown into--regional, area, urban and employment growth centres. Non-designated centres often existed with all required characteristics, but were located too close to existing centres. Priorities established and investment plan outlined for 1971-1975. Note large collection of data on all designated growth centres re: population 1960 and 1970, personal income employment and unemployment, education, industry, retail sales.

North, D. C. "Location Theory and Regional Economic Growth," Journal of Political Economy, 63, 1955, 243-258, Reprinted in J. Friedmann & W. Alonso (eds.), Regional Development and Planning: A Reader. Cambridge, Massachusetts: MIT Press, 1964, 240-255.

An attempt to show the inadequacies of regional economic growth theory and the advancement of more general propositions based on necessary conditions of: capitalist profit maximizing motive with mobile factors of production and absence of population pressure. Discrepancies include: capitalist nature of settlement of North America and prevalence of a foreign market from very start. Role of transportation and export-use explored as well as the necessity of industrialization for growth.

Nosari, E. J. "The Ozarks Region: A Growth Centre Strategy," Lexington: Discussion Paper No. 12, University of Kentucky, June 1969.

Outline of position of Ozarks region in EDA policy with reference to population characteristics, economic structure, and history of depression. Importance of transferral of vital factors of production to major metropolitan centres. Suggests two attributes of growth centres - potential for rapid growth as measured by employment and population change and a discernible influence on the surrounding hinterland as possibly measured by migration to the centre. Designation of immediate project absorptive areas (IMPACS) and high project absorptive areas (HIPACS) within the Ozarks region. Analysis of selected growth centres as to population growth, employment growth, migration and industrial mix shows little optimism for success as growth centres. Alternative of intermediate areas suggested with specific examination of best urban places in Ozarks, in particular. Input/output approach suggested "to measure all such effects of a viable growth centre on its surrounding depressed area." Resort to migration data as measure of pull on the hinterland.

Odland, J.; E. Casetti & L. J. King. "Testing Hypotheses of Polarized Growth within a Central Place Hierarchy," mimeo, 1972.

An extension of the method outlined in Environment and Planning, (1971), for determining spatial polarization with reference to an exogenously determined growth pole. Hierarchical polarized growth now considered such that level of growth at any point in a region is a function of the distances from the nearest centres of each order of the hierarchy. Method is tested using retail sales data for classes of Midwestern towns from 1948-1967 at 5 time periods.

Olsson, G. "Distance and Human Interaction: A Migration Study," Geografiska Annaler, 47B, 1965, 3-43.

Growth centres not explicitly mentioned, but comments on migration (especially p. 10) are relevant to the planning of growth centres. Olsson notes, with respect to migration as a means of achieving spatial economic equilibrium, the contradicting results by labour unions and management as to the effect of income in "pushing or pulling" labour.

Ontario Department of Economics and Development. International Conference on Regional Development and Economic Change. Toronto, 1965.

See papers by Thoman & Roterus which specifically include mention of growth centres.

Ontario. Design for Development: Statement by the Prime Minister of the Province of Ontario on Regional Development Policy. Tuesday, April 5, 1966.

Outline of government responsibility and objectives, of activity of government departments and agencies; organization at the government and citizen level. Note in the summary (p. 24) the explicit "formulation of development plans based on the concept that regional growth centres are the unifying social and economic force within the region."

Paelinck, J. "Possibilisme et pôle de croissance: phénomènes de prestige et de propagation dans le cadres de l'industrialisation néerlandaise," Economie appliquée, 12, 1959, 167-204.

Paelinck, J. "Dynamic Urban Growth Models," PRSA, 24, 1970, 25-37.

Recognized four distinct phases of the urban growth process:
(a) population-induced industries, service industries and construction,

(b) associated-industries era together with input/output and complementary labour attraction,

(c) external economies and urban services and

(d) policy-phase with urban services offsetting external diseconomies.

Use of different equation model format of implicit relevance to growth centre notions.

Paelinck, J. "Programming a Viable Minimal Investment Industrial Complex for a Growth Centre," in N. M. Hansen (ed.), Growth Centres in Regional Economic Development. New York: Free Press, 1972, 139-159.

Policy statements, such as those industrial programs for the Mezzogiorno in Italy, can yield the time span and growth potential of a given set of industries. This paper attempts a start at the question of where to begin such implementation. Examination of existing industrial complexes followed by a mathematical model of the investment, wages and productivity relations of given industries. The solution can be attained conceptually via an integer geometric program and operationally via a sequential approximation of its dual. The result is a subcomplex of minimally viable industries for whom production levels can be computed.

Parr, J. B. "The Nature and Function of Growth Poles in Economic Development," Paper presented at AAG, 1965.

Origin of growth pole notion as more of an analytical observation of reality; followed by its use as a tool for regional planning. Emergence of growth poles based on agglomeration economies, leading industries, function as a central place and concentration of enterprises and innovators. In the case of the induced growth pole, note the distinction made between relocation and growth per se. Examples in France, and U.K. where growth poles are an integral part of regional planning; also in India, Italy, Venezuela, and Ghana. Policy to: stimulate depressed areas, relieve congestion and inefficiency in existing centres, carry out industrialization and urbanization in developing countries, and balance development between regions. Location of growth poles only hinted at as complex process.

Parr, J. B. "Outmigration and the Depressed Area Problem," Land Economics, 42, 1966, 149-159.

Summary of the characteristics of depressed areas and an examination of the implications of outmigration as a possible solution (assuming no potential for industrial relocation). Both demand and supply sides of labour in a depressed area. Advantages cited of outmigration with respect to demand for labour and disadvantages incurred. Importance of not oversimplifying the issue. Implicit to policy mechanism for initiating a growth centre.

Parr, J. B. "Regional Development," Chapter 5 in P. Baron (ed.), Focus on Geography: Key Concepts and Teaching Strategies. Washington, D.C.: 40th Yearbook, National Council for Social Studies, 1970.

Aim to examine some of the determinants of regional growth, to discuss the geographic structure of economic activity within the individual region and to scrutinize certain aspects of regional development in a national setting. 'Development' associated with increases in levels of population or employment. Role of export base theory, multiplier effect, forward or backward industrial linkages; import substitution and "stages" theory of regional growth as alternatives to base theory. Above theories all concerned with demand; supply side necessary as represented in industrial location theories. Structure of regional development rarely evenly spread. Role of scale of production, agglomeration economies, and nodal response to regional growth. With regard to regional development at the national scale are the questions of the core-periphery problem and balanced regional development, regional differences and national economic development and depressed areas. Implicit to the whole question of growth centres by its very nature of amplification of the underlying structure of regional development.

Parr, J. B. "Growth Poles, Central Place Analysis and Regional Development," Paper presented at the 12th European Congress of the Regional Science Association, August 31, 1972.

Pasma, T. K. Characteristics of Modern Industrial Plants. U.S. Department of Commerce, Economic Development Administration, 1966.

Characteristics of 63 modern industrial plants built in late 1950's in every state. Selective rather than random sample, but some indication of labour, land, servicing and transportation inputs necessary. Emphasis on physical site needs rather than assessment of inner city industry.

Pedersen, P. O. & W. B. Stohr. "Economic Integration and the Spatial Development of South America," American Behavioural Scientist, 12:5, 1969, 2-12.

Article is mainly concerned with accessibility and interaction between Latin American countries. It is noted that pure settlement policies and resource extraction policies alone will not produce self-sustained growth because "they fail to create external economies in the form of growth poles." "Integral development policies" suggested to amalgamate world capital and know-how with local natural and human resources. Distinction made between vertical and horizontal development policies.

Pedersen, P. O. "Innovation Diffusion within and between National Urban Systems," Copenhagen: Technical University of Denmark, Department of Road Construction, Traffic Engineering and Town Planning, 1969. Published in Geographical Analysis, 2, 1970, 203-254.

In the first part of the paper, the author investigates the process of innovation diffusion in a less-developed country (Chile). The second part deals with diffusion of different innovations among Latin American Countries. Innovation concept in context of an urban system broken down into --the innovation, the adoption unit (household versus entrepreneurial), channels of communication and the social structure, and the value system. Initiation of the diffusion process via local invention or imitation from outside. Effect of urban size and of distance in the spread of an innovation. Formulation of an iterative simulation model to estimate the parameters involved in the diffusion process. Importance of personal communication in adoption--information approximated by the gravity formulation. Incorporation of non-homogenous population based on varying social structure and susceptibility to change. Application of this proposed model to regular linear central place hierarchy to observe changes in the distance decay function, the threshold level and the willingness to adopt. Incorporation of some simple tenets regarding urban growth--town increases its growth rate once it has accepted an innovation. Then goes on to identify major trends in Latin American diffusion process. Relevance to spread effects of growth poles where findings on role of distance decay function seem to vary with level of economic development.

Penouil, M. "An Appraisal of Regional Development Policy in the Aquitaine Region," Chapter 5, in E.A.G. Robinson (ed.), Backward Areas in Advanced Countries. London: MacMillan, 1969, 62-112.

Explicit discussion of some of the shortcomings of Aquitania traced to illusions surrounding 'growth point' notion. Discussion of the long-term character of underdevelopment with reference to demographic factors, income, standard of living and growth of economic activities. Further discussion of the role of public investment in development. Inadequate analysis of the 'growth point' at fault in Lacq gasfield area rather than failure of the concept as a means of development. Necessary that a growth point perform the following: (a) technical content of the level attainable by surrounding population, (b) greater development impact when more processing can be done locally, (c) repercussion of activity on employment and distribution of incomes. Growth-promoting influence based on: (1) forward and backward effect of complementary relationships, (2) existence of a multiplier mechanism between growth point and earlier or later state of production, (3) psychological impact of behaviour which tends to modify traditional practices to be more productive. Input/output table presented

for entire Southwest region showing much lower induced effects than would normally be expected. Because of the interdependence of the national market, the chances of creating the required growth triggering activities are very small. Also, the importance of the gap between an underdeveloped area and the country at large, is emphasized.

Perloff, H. S. & V. Dodds. How a Region Grows: Area Development in the U.S. Economy. New York: Supplementary Paper No. 17, Committee on Economic Development, 1963, especially chapter 2 and last chapter.

A general summary of regional growth (population and economic) based on U.S. National and regional statistics and for specific sectors of the economy. Related to growth pole concepts only implicitly in last chapter on regional development of subnational areas--ideas of growth industries and migration.

Perroux, F. "Economic Space: Theory and Applications," Quarterly Journal of Economics, 64, 1950, 89-104, and reprinted in J. Friedman & W. Alonso (ed.), Regional Development and Planning - A Reader. Cambridge: MIT Press, 1964.

Denunciation of 'banal' geographic space location in favour of abstract economic space. Latter consists of three elements - defined by a plan, seen as a field of forces and as a homogeneous aggregate - illustrated with reference to the firm and to France as a nation.

Perroux, F. "Les espaces économiques," Economie appliquée, 3, 1950, 225.

Perroux, F. "L'Anglo-Iranian Company et la théorie de la firme dominante," Cahiers de l'I.S.E.A., 1951.

Perroux, F. "La Ruhr pôle complexe de développement," Cahiers de l'I.S.E.A., 1952.

Perroux, F. "Note sur la Notion de 'Pôle de Croissance'," Economie appliquée, 8, 1955, 307-320.

Economic growth as a differential process in urban centres of varying size and location. Role of propulsive industries in national economy and their relation to the rest of the environment discussed.

Perroux, F. "Les pôles de Développement," in the Challenge of Development Symposium. Jerusalem: 1957-1958.

Perroux, F. "Les points de développement et les foyers de progrès," Cahiers de l'I.S.E.A., November 1959.

Perroux, F. "La Firme Motrice dans la Région et la Région Motrice," in Théorie et Politique de L'Expansion Régionale. Brussels: Proceedings of the International Symposium of the Institute de Service Economique, University of Liège, 1961.

Perroux, F. "L'économie des jeunes nations, Industrialisation et groupements des nations," Paris: 1962.

Perroux, F. L'économie du XXeme circle. 2nd edition, Paris: Presses Universitaires de France, 1964.

(In French only) - part II on growth poles pp. 123-292. Especially covering economic space (with examples), notion of growth poles, propulsive industries and of complexes of industries, notion of development and development poles.

Perroux, F. Les Techniques Quantitatives de la Planification. Paris: 1965.

Perroux, F. "Materiaux pour une analyse de la croissance économique," in Cahiers de l'I.S.E.A., 9D.

Perroux, F. "Espace économique poles de croissance et unités en agriculture," International Symposium of the C.I.F.E.A., Angers: 1968.

Perroux, F. "Multinational Investment and the Analysis of Development and Integration Poles," in Multinational Investment, Private and Public, in the Economic Development and Integration of Latin America. Bogota, Colombia: Inter-American Development Bank, April 1968, 89-125.

Some introductory remarks about the effect of multinational investment on development poles (compared to integration poles). Effects of importing industrialization in Latin America where 'generators' and 'transmission lines' for development do not exist. Note distinction between development pole and integration pole. Financing of such integration poles and the role of outside (i.e., European) investments discussed.

Pillai, N. G. et.al. Regional Development and Economic Growth: The Problem Background. CPL Exchange Bibliography No. 115, February 1970.

International bibliography on regional development prepared initially for the Atlantic Development Board and as amended for the Department of Regional Economic Expansion. Breakdown into: books, journal articles, official documents, and miscellaneous.

Pillai, N. G. et.al. Regional Development and Economic Growth: Theory, Analysis and Techniques. CPL Exchange Bibliography No. 116, February 1970.

Same as CPL Exchange Bibliography No. 115, but with the emphasis on theory and methodology. Note the good coverage of the periodicals.

Pillai, N.G. et.al. Regional Development and Economic Growth: Policy, Planning and Programs. CPL Exchange Bibliography No. 142, August 1970.

Pillai, N. G. et.al. Regional Development and Economic Growth: Canada. CPL Exchange Bibliography No. 143, August 1970.

Pioro, Z. Growth Poles and Growth Centres in Regional Policies in Tanzania. Geneva: UNRISD, August 1969.

Pioro, Z. "Growth Poles and Growth Centres in Regional Policies in Tanzania," in A. R. Kuklinski (ed.), "A Review of the Concepts and Theories of Growth Poles and Growth Centres," February 1971, 39-72.

Historical review of the economy and urban structure of Tanzania. Use of growth centre theory in all three plans established between 1967-1969 for Tanzania. Plans envisage a hierarchical system of polarized growth with agricultural service centre and industrial development. Major problem consists of concentrating dispersed rural population. Polarization of economic activities also planned in belts along trunk roads. Three settlement patterns (based on varying completeness in urban hierarchy), suggested dependent largely on physical attributes of area.

Pleva, E. G. "Vital Issues in the Study of Aid," in W. D. Wood and R. S. Thoman (eds.), Areas of Economic Stress in Canada. Kingston: Industrial Relations Centre, Queen's University, 1965, 167-175.

The author raises the question of "aid" in the Canadian context and the question of regional breakdown with particular reference to the Ontario situation.

Political and Economic Planning. Regional Development in the European Economic Community. London: Allen & Unwin, 1962.

Discussion of principles behind regional policies whereby some industries, firms or regions, acting as poles of growth, are developing rapidly while others are at a standstill or declining. Social reasons more important than economic in carrying out regional policies. Examination of regional policies in Italy (Mezzogiorno), in France and with respect to European integration. Note the classic use of growth pole or development pole without any elaboration, as if a well-understood planning tool.

Pottier, P. "Axes de Communication et théorie de développement," Revue Economique, 14, 1963, 128.

Pred, A. R. The Spatial Dynamics of U.S. Urban-Industrial Growth 1800-1914: Interpretive and Theoretical Essays. Cambridge, Massachusetts: MIT Press, 1966.

Implicitly relevant to the study of growth poles because of the scope in isolating and modelling previously descriptive aspects of urban growth (innovation, initial advantage, local or regional threshold, and multiplier). Change in rank and population of U.S. centres to illustrate these concepts, but model not tested explicitly. Importance of existing size of centres and their manufacturing as basic to further inventions and innovations. American mercantile city distinct from above industrially-based ones (importance of wholesale-trading complex).

Probst, A. E. Industrial Territorial Complexes in the USSR. Tashkent: Paper presented for UN Industrial Development Organization (UNIDO), Interregional Seminar on the Role of Industrial Complexes in Economic Development, 1964.

Reckord, G. E. "Federal Redevelopment in the U.S.: Concept and Practice," plus comments in W. D. Wood and R. S. Thomas (eds.), Areas of Economic Stress in Canada. Kingston: Industrial Relations Centre, Queen's University, 1965, 122-138.

Review of American policies and programs aimed at redevelopment areas under ARA legislation.

Regulski, J. "Some Remarks on Development Poles Theory and its Application to Poland," in A. R. Kuklinski (ed.), "A Review of the Concepts and Theories of Growth Poles and Growth Centres," Geneva: UNRISD, November 1970, 215-231.

Examination of various systems of spaces (physical and informational) as first put forth by Hermansen (1970). Broken down into subsystems, with a discussion of the role of the regional planner in manipulating these. Capitalist economies catering largely to economic space, contrasted with socialist economy set more in social space. Then an extended discussion of development poles and urban networks in Poland.

Richardson, H. W. Elements of Regional Economics. Harmondsworth, England: Penguin Books Ltd., 1969, especially 102-107 and 136-138.

Importance of the growth point notions in bridging the gap between location theory and regional economics, especially as regards nodal hierarchy and agglomeration forces. In the later section he notes the frequent use in the U.K. of the selection of growth points for residential overspill development rather than for industrial growth.

Robinson, E.A.G. (ed.). Backward Areas in Advanced Countries. London: MacMillan, Proceedings of International Economic Association, 1969.

See articles by MacLennan and Robertson, Chinitz, Penouil, Davin, Valarche, von Boverter, Bylund, Vito and Hoover.

Robinson, G. & K. B. Salih. "The Spread of Development around Kuala Lumpur: A Methodology for an Exploratory test of Some Assumptions of the Growth-Pole Model," Regional Studies, 5, 1971, 303-314.

Backwash and spread effects centring on a growth centre are well known and can be interpreted as a process-response model analyzable via trend surface mapping. Discussion of form of the development surface, the nature of the dependent variable, and an hypothetical development level around Kuala Lumpur. Cubic surface identified as best explanation of upward-transitional, downward-transitional and new settlement or resource frontier (after Friedmann).

Robock, S. H. "Regional and National Economic Development in India," PPRSA, 6, 1960, 65-81.

Importance of growing regional disparity in national development plans cited throughout the world, but detailed analysis given for India. Importance of balanced regional growth stressed in second Five-Year Plan in relation to Hirschman's "necessarily unbalanced growth in a geographical sense." "Growing-point" concept is necessary, but not for dispersed social services, rural development and irrigation. Necessary to expand national income, speed industrialization, increase employment opportunities and reduce welfare inequalities.

Robock, S. H. "Strategies for Regional Economic Development," PRSA, 17, 1966, 129-141.

Complexity of implementing regional development based on inevitable regional disparity, the problems of stage of development, and conflict of social with economic goals. Implicit reference to growth centres when "injecting regional considerations into going activities, p. 139."

Rodwin, L. "Choosing Regions for Development," in C. J. Friedrich and S. E. Harris (eds.) Public Policy, Vol. XII of the Yearbook of the Graduate School of Public Administration Harvard University. Cambridge, Massachusetts: Harvard University Press, 1963, 141-162. Reprinted in J. Friedmann and W. Alonso (eds.), Regional Development and Planning: A Reader. Cambridge, Massachusetts: MIT Press, 1964, 37-58.

Review of economic and spatial theorists, empiricists and policy implications in selecting regions for development.

Rodwin, L. & Associates. Planning Urban Growth and Regional Development: The Experience of the Guayana Program in Venezuela, Cambridge, Massachusetts: MIT Press, 1969.

Only of implicit relevance -- note the functional breakdown of the problems confronting the induced development of such a "growth pole" (*italics mine*).

Rodwin, L. Nations and Cities: A Comparison of Urban Growth Strategies. Boston: Houghton Mifflin Co., 1970.

Rodwin, L. "Urban Growth Strategies Reconsidered," in N. M. Hansen (ed.), Growth Centres in Regional Economic Development. New York: Free Press, 1972, 1-19.

The extrapolation of Perroux's growth sectors to a spatial context is interpreted as beneficial rather than harmful. Summary of four aspects of the urban growth strategy in the U.S., France, Britain, Turkey and Venezuela with respect to generating conditions, effects of environmental similarities and differences, typical concepts and goals, and future directions. An attempt to make some general inductive statements based on the observations of existing conditions in these five countries.

Rosenfeld, D. "L'industrie motrice dans la région et dans l'escape économique intégrée: l'exemple de l'industrie mécanique dans la province de Turin."

Roterus, V. "Centralization or Decentralization of Economic Growth?" in International Conference on Regional Development and Economic Change. Toronto: Department of Economics and Development, 1965, 127-133.

Recognition of natural process of centralization and necessity of strong specific measures to promote a program of decentralization. Review of some of these measures (e.g. migration) intended to stimulate economic growth to flow into lower tiers established as future growth centres.

Sachar, A. S. "Israel's Development Towns: Evaluation of National Urbanization Policy," JAIP, 37, 1971, 362-372.

Schumpeter, J. A. The Theory of Economic Development. Harvard University Press, 1949 - first German Edition 1912.

Scitovsky, T. "Two Concepts of External Economies," Journal of Political Economy, 62, 1954, 143-151.

Separation of two concepts of external economies - one based on equilibrium theory and the other based on the theory of industrialization in developing countries. Former based on assumptions of perfect competition and perfect divisibility of all resources and results in four types of interdependence. Later is used in connection with allocating savings among alternative investment opportunities.

Scott, A. D. "Policy for Declining Regions: A Theoretical Approach" plus comments in W. D. Wood and R. S. Thoman (eds.), Areas of Economic Stress in Canada. Kingston: Industrial Relations Centre, Queen's University, 1965, 73-98.

Paper attempts to summarize the theory of regional economic development and its implications for policy for regions with less than national standard of growth and income. It is shown that "trade and location theory are suggestive but not really helpful..." whereas staple theory is of considerably more use. Therefore, staple theory examined in greater detail with reference to declining regions. Conclusions for policy include:

- (a) government aggravation of declining regions because of its inhibiting effect on factor emigration amongst staple industries,
- (b) government policy should be reversed to encourage migration,
- (c) possible to do so via promotion of education in skills necessary elsewhere, and
- (d) where mobility of labour fails, it becomes necessary to attract and hold new high level regional staples.

Shackelford, J. "On Thresholds, Take-offs and Spurs: A Place for SMSA's in Growth Centre Strategy," Lexington: Discussion Paper No. 27, University of Kentucky, March 1970.

Examination of SMSA's as they approach the 250,000 threshold. Population data for 231 SMSA's collected for 10 year periods between 1900 and 1965. Those which had not reached 100,000 and those over 250,000 by the first observation omitted. Documentation of average population before and after and the growth rate during 'spurt.' Thompson's threshold of 250,000 seen as a bit high. More likely to be 150,000 to 200,000 range. Note that of EDA-designated growth centres only 17 out of 80 qualified as SMSA's (minimum 50,000) and only 4 had population in excess of 100,000.

Siebert, H. Regional Economic Growth: Theory and Policy.
Scranton, Pennsylvania: International Textbook Co., 1969.

Growth on regional scale modelled for both closed and open region in terms of internal and external growth determinants. Model views spatial effects of an increase in demand whereby "a polarized origin of additional consumption prevails if the polarizing effects of the supply determinants create growth poles which represent centres of demand due to increase in income" (p. 44). Economic interdependencies discussed in growth pole case (pp. 190-193). It is noted that growth pole strategy may aggravate interregional income differentials and different specific strategies may lead to different results.

Siegel, J. "An Empirical Study of the Urban Hierarchy and its Relation to Growth in Southern Ontario," Research Paper No. 46, Centre for Urban and Community Studies, University of Toronto, July 1971.

Exploration of the hypothesis that a city's position in the urban hierarchy will effect the growth experience of the city. Growth can be seen as an increase in the volume or size and an increase in welfare. No data available on income for years between decennial census and also lack of common deflation index for cross-city analysis. Therefore, in-migration used as a measure of growth. 'Hierarchy' simplified to include satellite to census metropolitan area or an independent city. Results of regression analysis show that growth varies between two levels of hierarchy, but employment and occupational structure are not important variables in explaining urban growth. In-migration seen as a function of growth in the export-based activities which in turn is measured by growth in manufacturing activity. Latter expressed as growth in manufacturing employment which is chosen over alternatives such as number of establishments, salaries and total shipments. Expenditure of local governments on education, recreation and general expenditure used as a proxy for local service sector. Interested primarily in the satellite cities. Both export base and service seen as contributing to urban growth.

Song, B. A. "A Theory of Regional Economic Growth: Growth Poles and Development Axes," unpublished Ph.D. University of Southern California, 1970.

South Carolina. State Plan of Public Investment Coastal Plains Area Fiscal Year 1970-71. Coastal Plains Regional Commission, March 1971.

Preface includes history, purpose and philosophy of the Coastal Plains Regional Commission and the Coastal Plains region. Objective analysis of potentials and problems, especially with reference to human resources, natural resources, economic resources and infrastructure. Development strategy as per goals and objectives. Identification of growth-service areas of three types--existing concentration, focal point areas, and areas with unique development characteristics. Project determination based on program areas, geographic factors, economic and planning factors and local financial support.

Spiegelman, R. G.; E. L. Baum & L. E. Talbert. Application of Activity Analysis to Regional Development Planning. Resource Development Economics Division, Economic Research Service, U. S. Department of Agriculture, Technical Bulletin No. 1339, March 1965.

Formulation of an analytical model which can estimate the effects on income and employment that are accrued to low-income rural areas from additional public and private investments in the area.

Stiglbauer, K. "Some Problems of Central Places at the Lowest Level in Austria," PRSA, 18, 1967, 47-66.

Process of rapid urbanization in Austria evidenced in rapid growth of district centres and structural changes of low-level central places (p. 47). Limited to tertiary sector but a significant contribution to growth centre concepts. Analysis of lowest level of central places in Austria, their functions, and trade areas. Note especially the impacts of regional concentration (pp. 62-3).

Stohr, W. B. "Development Planning for Depressed Areas: A Methodological Approach," JAIP, 30, 1964, 123-131, reprinted in Regional Development Selected Background Papers. Ontario: Department of Economics and Development, 1965.

Problem of depressed areas as a specific problem in regional planning. Establishment of objectives for area along the Iron Curtain in Austria. Specific mention of growth points as the main criterion for identifying alternative spatial arrangements in a region. Shown that sectoral economic goals are not independent of spatial ones. Importance of systematic approach to development stressed.

Stohr, W. B. "Spatial Growth Differentials in Latin America, A Research Agenda on the Role of Urban and Transport Investment," Muncie, Indiana: paper presented at National Conference on Latin Americanist Geographers, May 1970.

Consideration of issues of: interregional disequilibria and diffusion of development between different regions of a country, growth poles and the diffusion of development within an urban system, diffusion of development from urban centres to rural hinterlands, and diffusion of development between countries. Role of transport investment, and urban infrastructure investment as related to designation of growth poles based either on demand or supply.

Thoman, R. S. "Areas of Economic Stress in Canada," in International Conference on Regional Development and Economic Change. Toronto: Department of Economics and Development, 1965, 18-26.

Summary of work at Queen's Conference by same title earlier in the year. Reference to Manners work that outlined incorporation of growth points into British regional planning about 1963. Manners criticized the indiscriminate attraction of any industries.

Thoman, R. S. & M. H. Yeates. "Delimitation of Development Regions in Canada with Special Attention to the Georgian Bay Vicinity," Ottawa: Area Development Agency, Department of Industry, 1966.

Paper aims at delimitation of criteria and principles for delimitation of development regions in general, and for Georgian Bay region, in particular. Both homogeneous and functional regions considered, but the latter is of more importance because of the ADA objective of alleviation of excessive economic stress. Homogeneous regions assessed on the basis of: density, distribution, and selected rural/urban aspects of population, density and distribution, of land use, density and distribution of secondary activities. Functional regions identified via commodity linkages of secondary activities, journey-to-work linkages of secondary activities and commodity and service linkages of tertiary activities.

Manufacturing viewed initially as detailed criterion with respect to concentration, industry mix in centres of certain size, journey-to-work and commodity flow.

Retailing and Wholesaling sector as a replication of earlier central places studies with the use of retail services for small urban centres and wholesale services for larger urban centres.

Journey-to-work also calculated via field interviewing. For general delimitation of regions, it is noted that so much is dependent on existing standardized data collection. Implicitly related to growth centre concept via aims of ADA, but no explicit mention of growth centres per se.

Thomas, M. "Growth Pole Theory: An Examination of Some of its Basic Concepts," in N. M. Hansen (ed.), Growth Centres in Regional Economic Development. New York: Free Press, 1972, 50-81.

Analysis of a number of basic issues in growth pole concept to reduce ambiguity. Begins with the relation to regional economic growth and location theories; follows with historical perspective of growth pole theory from work of Perroux, Chenery and Hirschman; then specific discussion of the growth mechanism and of the spatial component of growth poles.

With reference to growth mechanism, Perroux cites cost reduction as an important means of bringing about economic growth. Stress on consumer-income expansion in balanced growth theory could be more applicable to growth pole theory. Review of external economies - both Marshallian concept (competitive equilibrium) and effect of one investment on the profitability of another (Scitovsky's 'pecuniary external economies'). Inferred that growth always accompanied by scale economies -- not widely substantiated. With reference to notion of "lead" industries and the supposed economies accruing from innovations, a review of research and development with reference to size of firm, and output is carried out. Further discussion of innovation and diffusion. With reference to spatial context, more questions are asked of location analysis, location theory, growth elements, and industry growth patterns.

Thompson, W. R. A Preface to Urban Economics. Baltimore: Johns Hopkins Press for Resources for Future, 1965.

No explicit mention of growth centre concept but good basis for such work in reference to 'urban size ratchet' (pp. 21-27), and depressed areas on national scale (pp. 189-190). The supply and demand side of urban growth expanded with interesting applications to growth centres. Employment and income examined in urban and economic context.

Thompson, W. R. "Urban Economic Development," in W. Hirsch (ed.), Regional Accounts in Policy Decisions. Baltimore: Johns Hopkins Press for Resources for the Future, 1966, 81-121.

While not specifically mentioning growth poles, the article has obvious and repeated applications.

See also the ensuring comments by Striner and Perloff, 122-130.

Thompson, U. R. "Internal and External Factors in the Development of Urban Economics," in H. S. Perloff and L. Wingo, Jr. (eds.), Issues in Urban Economics. Baltimore: Johns Hopkins Press for Resources for the Future, 1968, 43-62.

Initial review of export base theory as related to traditional income analysis, stressing the level, distribution and stability of income. A theory of urban-regional growth therefore related to population size, and resources (both human and physical). Filtering-down theory of industry location based on industry mix and share of market as tending to keep large areas growing.

Toborg, M. A. Growth Centres and Potential Focal Points for Development Policy. Washington, D.C.: Economic Development Administration, 1967.

Toborg, M. A. "Assistance to Development Districts and Growth Centres," U. S. Department of Commerce, Economic Development Administration, October 1969, mimeo.

P.W. & E.D. Act (1965) offers assistance to three geographical groupings: single county redevelopment areas, multi-county development districts and multi-state development regions. Paper concerned with concept and philosophy of E.D.D. and allied notion of a growth centre and its financial assistance. Summary of first three years of implementation of EDA funds to EDD's. Basic to development district program is the notion of the growth centre. Purpose seen as twofold: to stimulate growth where potential exists and to link depressed areas with growing ones. Examination of EDA funding in growth poles on the basis of size of centre, median family income, rate of population growth. Money spent on public works, and business loans. An interesting result shows that costs per job were significantly lower in 'high' growth areas than in 'low' growth areas. Money might be better spent on those with greater growth potential than 'worst-off.' Importance of positive social program for carrying centre's influence into the hinterland.

Tolosa, H. C. "Growth Poles: A Study in the Economics of Spatial Concentration," unpublished Ph.D., Regional Science, University of Pennsylvania, 1969.

Growth pole theory in answer to question of insufficient capacity to import from a spatial point of view. Study attempts to formulate a stringent mathematical economic growth model for a developing economy at the take-off stage. Deals first with sectoral growth in Part I. Shows that balance of payments pressures lead to a comparative advantage in terms of scarce production factors and foreign exchange. A number of paths exist which determine a set of variables representing the total volume of investment funds allocated to each sector per unit of time.

Spatial organization discussed in the second part. Question of concentration and maximum national income versus reduction in centre-periphery notions.

Tolosa, H. C. & T. A. Reiner. "The Economic Programming of a System of Planned Poles," Economic Geography, 46, 1970, 449-458.

Paper offers a practical method by which the growth pole theory can be used in developing countries to distribute investments in at least a near-optimal fashion. Limited application of growth poles to underdeveloped nations because of necessity of some growth. Therefore, not applicable to initiating industrialisation in subsistence economies. Note the statement, "A growth pole need not be located at an existing centre (p. 450)" compared to Hansen, or Berry who stipulate the economic suboptimality of even locating in small centres. Workable definition of growth poles based on elementary graph theory stressing functional nature of growth pole concept. Failure to identify the causes of concentration or growth. Set of 9 necessary elements outlined; to be tested via simulation, but too expensive (time and \$) in developing countries. Therefore mathematical programming suggested. But even this requires too many equations. Assume existence of a central planning agency and a set of regional planning agencies. Goal seen as elimination of centre-periphery disparities. Two phases of pole selection and allocation of investment funds recognized.

Tudor, D. "Regional Development and Regional Government in Ontario," CPL Exchange Bibliography No. 157, October 1970.

Annotated bibliography related to planning, policies, economic development and implementation. Good source for much of the work being carried on in Ontario.

Ulrich, A. "Urban-Regional Systems," Supplement D in The Role of Growth Centres in Regional Economic Development. Ames, Iowa: Department of Economics, Iowa State University, 1966.

Regional economic growth can not be adequately portrayed by static economic systems. Usefulness of the stages of growth theory and systems analysis model of regional development. Importance of functional linkages. Attention focussed on two analytical systems—a model of the urban-regional economy for projection of certain variables, and a system of social accounts to evaluate the progress of the region. Former is a recursive model whereby inputs are generated by previous year's outputs. Latter shows the actual level of input, output and intervening variables in simulation process. Production model is of the input/output variety with centre-periphery dichotomy introduced via two-region model. Partial implementation of model via money-product flows matrix for regional centre and its periphery using 1960 Arkansas data.

UNRISD. "Programme of Research on Regional Development," Geneva: July 1968.

Summary of the purpose of regional development research at the world-wide level and of research undertaken for 1968-69. Main areas include: experiences and prospects of regional development at the world-wide scale, sociological aspects of regional development, information systems and regional development planning and role of growth poles and growth centres in regional development.

UNRISD. "List of Working Papers & Documents 1967-1971," Geneva: 1971.

Upper Great Lakes Regional Commission. "Planning Underpinning for Early and Comprehensive Programs of the Upper Great Lakes Regional Commission," Victor Roterus (consultant), August 25, 1967, mimeo.

Definition of "some of the desirable elements of a region-wide planning framework and the nature of the work program statement for each state." Breakdown of planning base into short-term and long-term priorities. Short-term should include areas most likely to attract private investment (urban industrial or tourist-resources) of future population growth, and transportation facilities.

Upper Great Lakes Region Commission. Economic Atlas. (Carried out by the Department of Geography, George Washington University), October 1968.

Presentation of maps compiled by UGLRC relating to: (1) population (1967, density 1967, population change 1940-67 and net migration 1950-1960); (2) towns and infrastructure (urban places 1960, commuting patterns of selected centres 1960, ports, airports and railroads 1967 and major highways by traffic volume 1964); (3) economic activity (dominant economic activity 1960, value added in manufacturing 1963, total retail sales 1967....labour force participating rates 1960) and (4) social well-being (per capita income 1967, farm operator level of living index 1959, sound housing 1960, educational attainment 1960 and higher education facilities).

Upper Great Lakes Regional Commission. "Highway Planning Considerations for the Upper Great Lakes Economic Development Region." "Early Action Proposal," Supplement Report No. 1, 1967.

"Preliminary Inventory of Needs."

"Prospectus for Regional Development: First Year Investments," (1969).

Upper Great Lakes Regional Commission. Regional Economic Development Plan and Five-Year Program. December 1970.

Document submitted in conformance with Section 503 Title V of Public Works & Economic Development Act (1965). Summary of five-year proposal based on federal and state aid amounting to some \$546 millions. Area includes 119 counties of Michigan, Wisconsin and Minnesota. Discussion of economic development in the region and its effects on population and employment. Project evaluation on the basis of tackling of the six basic questions relating to employment, per capita income, public services, private investment, environmental quality and dependent projects. In-depth study of population projections, private investment incentives. Extensive bibliography of all EGLRC work pp. 117-119.

Urban Land Policy - Selected Aspects of European Experience.

Washington, D.C.: Office of International Affairs Special Report, Department of Housing & Urban Development, June 1970.

Relates examples from European experience - London, Paris and Ranstad. Note the close ties to the planning concepts of new towns. Also the Polish conceived theories of thresholds (pp. 136-7) as an attempt to give some quantitative measure to the alternative forms of urban growth. Note the British study by Stone (pp. 147-151) which has shown economic advantages for infrastructure of urban expansion in small provincial towns (supported by further European work). Explicit mention of economic growth centres (p. 183) but the vagueness of the planning applications. Question of national versus local scale. Originally designed to eliminate local poverty and unemployment. Negative role of growth poles e.g. Hungary with 'counter poles' and France's theory of unbalanced growth. Five main issues: size and number (Germany and Austria compared to Norway and Israel); criteria for growth centres; infra-structure priorities; infra-structure in the hierarchy of urban settlements and infra-structure, economic growth centres and the larger perspective.

U. S. Department of Commerce, EDA. Industrial Location as a Factor in Regional Economic Development.

- U. S. Department of Commerce. EDA Handbook...a statement of the philosophy, organization and programs of the Economic Development Administration, June 1968.

Origination in Public Works and Economic Development Act of 1965, to replace the Area Redevelopment Act and Public Works Acceleration Act. Strategy of agency administering this act (EDA) involves: the developmental process, an order of priorities, its own action plans and a method of selection. Developmental process based on: local origination of initiative and requests for assistance, full co-operation between public and private sector, identification of certain goals and their achievement and maximum co-ordination of local, state and federal projects. Order of priorities based on "worst-first" policy usually with regard to % of unemployed rather than on absolute numbers. Summary of EDA administration and operations. Four types of geographic areas eligible for assistance: redevelopment area, title I area, economic development district, and economic development region. Each has to meet differing requirements with respect to substantial or persistent unemployment, population loss, and median family income. Formulation of Overall Economic Development Program (OEDP) from local level. Review of EDA program assistance via public works, business development, technical and planning assistance. Assessment of eligibility of various projects for EDA assistance.

Summary of all forms to be handled by applicants.

- U. S. Department of Commerce. Jobs for America: EDA Annual Report. Fiscal Year 1969.

Summary of each of major projects funded in Fiscal Year 1969 plus a state summary of all projects, stage of development and funding.

- U. S. Department of Commerce. Directory for Economic Development Districts, Economic Development Administration, October 1970.

Summary of E.D.D. chairman and executive directors arranged alphabetically by state. Also summary of each regional commission.

- U. S. Department of Commerce. Economic Development District Composition and Status. Economic Development Administration, December 31, 1970.

Statistical summary of E.D.D. as authorized, funded and designated. Names, composition and status of E.D.D.'s by state with mention of designated development centres and redevelopment centres.

- Valarche, J. "The Backward Region of Fribourg in Switzerland," Chapter 7, in E.A.G. Robinson (ed.), Backward Areas in Advanced Countries. London: MacMillan, 1969, 144-161.

- Valarché, J. "The Role of the Tertiary Sector in the Economic Development of Switzerland," Chapter 8 in E.A.G. Robinson (ed.), Backward Areas in Advanced Countries. London: MacMillan, 1969, 210-225.
- Vanneste, O. "The Growth Pole and the Regional Economic Policy," Bruges: 1969.
- Vito, F. "Problems of the Underdeveloped Regions of Italy," Chapter 11, in E.A.G. Robinson (ed.), Backward Areas in Advanced Countries. London: MacMillan, 1969, 210-225.
- Widner, R. R. "The First Three Years of the Appalachian Program: An Evaluation," Appalachia, 1:11, 1968, p. 19.
- Will, R. A. "Federal Influences on Industrial Location," Land Economics, 40, 1964, 49-57.

Increase in government role of influencing plant location patterns, both directly and indirectly, via establishment of governmental agencies often run by private contractors; direct government assistance for industries locating in specified areas; development and improvement projects affecting attractiveness of sites or areas; and legislation and legal action which effects plant location.

- Wilson, G. W. et. al. The Impact of Highway Investment of Development. Washington, D.C.: The Brookings Institution, 1966.

Ch. VI Concepts and Approaches: A Critique. Conceptual ambiguity surrounding the interpretation of functional relationship between transportation and economic development. Necessary to evaluate beyond direct costs and benefits to question whether a complex of changes has necessarily taken place. Problem of data availability and reliability is acute. Methodology includes both cross-sectional and time series analysis with the emphasis on the latter. Some comments on the case study method of analysis offered.

Ch. VIII What the Cases Show? Additional capital, whatever its form, may be necessary, but not a sufficient condition, to induce economic growth. Transportation not necessarily the "leading sector" or even the preconditions for take-off. Rather, it is a response to the pressures generated both from without and within. Stimulus to growth relies not only on one factor (e.g. exploitable resources), but also on the willingness to exploit a new resource. In every case there was a net increase in total mobility, not merely a diversion. With increased mobility there was an increase in production, particularly agricultural, with change from subsistence to market-oriented. Usually stimulated by a sharp increase in freight and passenger charges along with improved service.

Wilson, T. Policies for Regional Development. Edinburgh:
University of Glasgow, Social & Economic Studies,
Occasional Paper No. 3, 1964.

1. Regional Policies and National Economic Growth.

Aid to regional less-thriving areas justified via: (1) underemployment of labour force, (2) lower level of output and real income per head, (3) slower rate of growth output, and (4) desirability of diverting a larger part of future industrial expansion away from congested areas. Discussion of the role of migration and the greater applicability to national growth, compared to bringing new industry to immobile workers in unsuitable locations. Note political implications of former as a possible solution.

2. Mobility and Centres of Growth.

Two solutions seen as: (1) migration and subsidization, and (2) encouraging regional growth in national perspective. Inadequacy of piecemeal measures for inducing new development. Necessary to stress existing industrial centres. Explicit recognition of the desirability of developing centres of growth laid out in Scotland (Cairncross Report 1952 and Toothill Report 1961) and in England (Official White Paper 1963). Central Scotland provides growth centres between 70,000 - 100,000; N.E. England and N. Ireland have centres somewhat smaller. In the case of Canada's Maritimes, Employment Service Districts were the basis for designating growth centres (pp. 18-19). Note the problems raised. Whole Maritimes should have been designated and, then concentration on the particularities of each region. Failure to use any notion of greatest growth potential or minimum size for designation. Problem of employment district boundaries (Cornerbrook versus St. John's). Absolute necessity of mobility - e.g. reference to Newfoundland. (mobility within a province rather than to Central Canada).

3. Financial Assistance to Industry.

Two forms: (1) direct control by Government (Britain and several European countries but NOT in Canada). Usually involves discouraging expansion in given areas: loopholes in legislation. (2) Financial inducements - on what scale and for how long? Should scale vary by area and by potential? Should assistance be confined to manufacturing? Should assistance be confined to newcomers? Should assistance favour labour-intensive over capital-intensive enterprises. Should incoming firms be subject to input/output analysis.

4. Effectiveness of Different Types of Industries.

Importance of high operating costs in initial years. Therefore importance of indirect taxation (e.g. waving of duties), lenient municipal taxation, death duties, corporation taxes, accelerated depreciation, government grants, government loans, industrial estates, assistance with other costs (e.g. labour training).

5. Cost to Government

Cost of industrial inducements put on per worker basis.
Also cost of infra-structure.

6. Conclusions

Inducements should be aimed at self-sustaining growth,
short-lived support.

Winnick, L. "Place Prosperity versus People Prosperity: Welfare Considerations in the Geographic Redistribution of Economic Activity," in Essays in Urban Land Economics. Real Estate Research Program, UCLA, 1966, 273-283.

Predominance of place prosperity at local level has produced numerous contradictions when elevated to national scale. Place prosperity has become a means to people prosperity. Induced urban growth tends to only redistribute purchasing power rather than create it. Questioning of the role of government intervention in such cases.

Wojtasiewicz, L. "Konin Industrial Region in the Economic Development of Poland," in A. R. Kuklinski (ed.), "... Seven Case Studies," February 1971, 73-84.

Development of industrial complex in move to further unbalanced economic development in Poland. Notion of leading sector and attraction of ancillary industries.

Wood, W. D. & R. S. Thoman (ed.). Areas of Economic Stress in Canada. Kingston: Industrial Relations Centre, Queen's University, 1965.

Interdisciplinary conference on both theoretical and policy aspects of regional economic development. Papers by Graham, Berry, Scott and Brewis on theoretical issues of regional disparity. Public policy examined in later papers by Reckord, Mannors, Pleva and Gertler.

Wright, M. "Growth in Hinterlands: Issues of Urban Centre Influence," Austin: University of Texas, Centre for Economic Development, Discussion Paper No. 26, 1971.

Examination of the hierarchical and spread components of urban population growth around a central city in light of the innovation diffusion concept. Ten SMSA's in the Midwest exhibiting pronounced core/hinterland relations, examined at twenty-five mile concentric bands up to 100 miles. It was shown that the varying size classes of hinterland cities, the hierarchical order of highest population increase varied, while the smaller size-class cities all exhibited declining rates of growth with distance. Results interpreted as supporting the greater importance of spread, rather than hierarchical growth.

Yeates, M. H. & P. E. Lloyd. "Impact of Industrial Incentives: Southern Georgian Bay Region, Ontario." Ottawa: Geographical Paper No. 44, Department of Energy, Mines and Resources, 1970.

Report examines the economic impact of Area Development Incentives Act (1965) in Canada Manpower Centres of Collingwood, Owen Sound and Midland. Study conducted to assess the direct impact of the program on capital investment employment, the wage bill and local taxation. Indirect impact estimated via Hansen-Tiebout model and simplified interregional input-output model. Both economic and spatial/structural aspects viewed. Also impact of program on tertiary structure and employment attempted.

Tertiary structure of towns (from telephone directories) and industrial questionnaire supplemented with much existing data. Impact assessed via cross-sectional models. Mention made of "growth industries" for the nation as a whole (sectoral growth). Significance of the spatial impact (p. 47) of ADA program with reference to industry, not developed extensively.

Zajda, Z. "Models of Industrialization and the Localization Policy of Industry," Warsaw: Problems of Regional Economic Development, Vol. XIX, Committee for Space Economy & Regional Planning of the Polish Academy of Sciences, 1968.

Zaremba, P. "Observation about the Synthetical Approach to Theories of Development," in A. R. Kuklinski (ed.), "A Review of the Concepts and Theories of Growth Poles and Growth Centres," Geneva: UNRISD, November 1970, 205-214.

As a follow-up to Hermansen's paper (1970), aim to identify several concepts and present synthetical conclusions. Necessity of patterns of axial and polar development stressed rather than separate poles. Role of physical planner noted as of great potential vis-a-vis the theoretician.

Zarka, C. "Un exemple de pôle de croissance à l'industrie textile du Nord de la France," Revue économique, 1958, 65-106.

COUNCIL OF PLANNING LIBRARIANS Exchange Bibliography #374-#375

ANNOTATED BIBLIOGRAPHY ON GROWTH CENTRES

Additional copies available from:

Council of Planning Librarians
Post Office Box 229
Monticello, Illinois, 61856

for \$8.00.

- - - - -







UNIVERSITY OF ILLINOIS-URBANA

016 7114C73E C001
EXCHANGE BIBLIOGRAPHY URBANA ILL
361-375 1973



3 0112 029109136